

# 3DArtist<sup>47</sup>™

Practical inspiration for the 3D community

Go pro with  
free software

Produce skilful renders with  
Blender, Inkscape and GIMP

**Expert tuition**

- Texture control in 3ds Max
- Particle effects in CINEMA 4D
- Improve skin with V-Ray

**CREATE  
THIS IMAGE  
STEP-BY-STEP  
+ WORKFLOW  
TIPS**

## CREATE STRIKING CHARACTERS

Kurt Papstein's expert guide to the hottest features in ZBrush 4R4

- Use Insert Multi Mesh brushes
- Learn to PolyPaint with masks
- Perfect Topology brush basics
- Customise materials and lights



### Expert lighting

Discover the impact of lighting and how to use it to tell stories



### 3ds Max scripts

Update your workflow to build inspiring arch vis more quickly



### Sci-fi interiors

Follow a Hollywood designer's proven workflow in LightWave



### Photoreal renders

Create ultra-realistic images with KeyShot in our masterclass guide

£6.00

ISSUE 47

**ip**  
IMAGING  
PUBLISHING

**PLUS:** Discover CINEMA 4D R14 • Top workstations under £1,200



Dell recommends Windows® 7 Professional.



# The fastest route from ideas to reality.



Introducing the world's most powerful mobile workstations:  
the Dell Precision™ M6700 and M4700.



With the power of the latest Intel® Core™ i7 processor Extreme Edition, Windows® 7 Professional and up to 2.8TB of storage, your business can do more, faster. Like running multiple applications simultaneously on up to five displays\* with grade 2D and 3D graphics from NVIDIA®. Plus, when equipped with an optional secondary slice battery and optional NVIDIA® Optimus™ technology, the Dell Precision offers all-day battery life to power your needs. With 24/7 Dell™ ProSupport™ also available, you can continue to power your business. Now, executing your big ideas is possible.

**See what's possible at > [Dell.co.uk/bridge](http://Dell.co.uk/bridge) or call 0844 444 3697**

Call lines open Monday to Friday 8am to 8pm and Saturdays 9am to 6pm



The power to do more

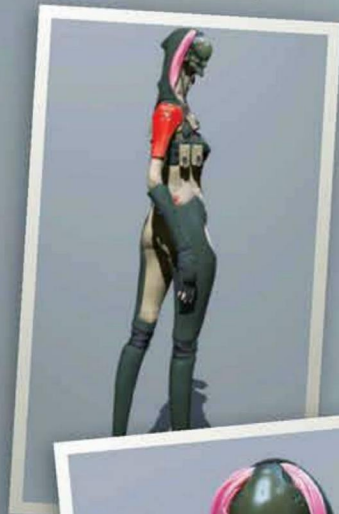
Dell Products. Registered in Ireland. Reg. No. 191034 c/o P.O. Box 69, Bracknell, Berkshire RG12 1RD. Subject to availability. Prices and specifications are correct at date of publication and may change without notice. Terms and Conditions of Sales, Service and Finance apply and are available from [www.dell.co.uk](http://www.dell.co.uk). Technician will be dispatched if necessary following phone-based trouble shooting. Service may be provided via telephone or internet where appropriate. Certain restrictions apply. Offers end 1st November 2012. Microsoft® Office 2010 and Windows® 7 are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries.





When an artist gets as excited about new workflow as Kurt Papstein does, you know you're in safe hands. Sitting excitedly at the cutting-edge of ZBrush technology as part of the beta-testing crew, Kurt gets to check out all the latest features and improvements - before the rest of us get our mitts on them. Keeping inspired and motivated by those around him - whether in 3D, fashion, music or elsewhere - he is constantly pushing the boundaries of both his ideas and techniques. He is forever experimenting to forge an abundance of creations that use the very latest techniques and tricks to produce never-before-seen works. Check out his portfolio on page 46.

Kurt's pro ZBrush tricks will help you model helmets for characters



Speed up your workflow with hot tips for the latest features in ZBrush 4R4



“Each step will have something for everyone and will be focused on sharing some of the newer features of ZBrush 4R4”

Kurt Papstein shares his expert advice on the creation of powerful characters **Page 52**

Artist info



**Kurt Papstein**

**Location**

California, USA

**Software used**

ZBrush, Photoshop

While Kurt's day jobs at Turtle Rock Studios and Laguna College of Art and Design keep him busy, he has never been one to sit on those creative hands. So, shaking up his sleeping patterns, he has worked through the nights to bring us an awesome character that showcases the latest features in ZBrush 4R4. We hope you'll enjoy mastering all these and incorporating them into your own inspiring creations - simply head to page 52 to get started. Happy sculpting!

**Pro  
character-  
creation  
tips**  
Page 52

**With the Disc**

• Free bags and buckles (ZBP and ZTL files) to help you take your character designs to new creative heights



# Welcome

to the magazine and 116 pages of amazing 3D

Every issue  
you can  
count on...

- 1 116 pages of creative inspiration
- 2 Behind-the-scenes guides to images and fantastic artwork
- 3 A CD packed full of creative goodness
- 4 Interviews with inspirational artists
- 5 Tips for studying 3D or getting work in the industry
- 6 The chance to see your art in the mag!



Here at 3D Artist we never fail to be impressed by the incredible live demonstrations by artists at the various industry and community events we visit. Inspired, we've snatched ZBrush talent Kurt Papstein – who presented a fantastic demo at SIGGRAPH 2012 – to create a brand new character from scratch, just for you!

Talking to artists like Kurt, it's clear that there is no single way to tackle a problem in ZBrush; it's all about finding workflow that suits you and makes the most of the groundbreaking tools that Pixologic has put at our fingertips. For masterful workflow tips, and to find out how the new features in ZBrush 4R4 can drastically improve your character creations, check out page 52. That's after you've delved into Kurt's extraordinary sketchbook on page 46, of course.

Enjoy the issue!

Lynette

## This issue's team of expert artists...



Richard Yot

Richard knows a thing or two about setting the right mood, so you'd do well to check out his feature on narrative lighting



Kurt Papstein

Create artist and ZBrush tutor Kurt details the tools and techniques required to expertly concept your own characters



Sean Hargreaves

Sean takes a break from Hollywood production design and discusses using LightWave to create gleaming interiors



Chris Kowal

In the first of a two-part tutorial, Chris teaches us how to model and manage large arch-vis scenes with flair



Jahirul Amin

This issue the endlessly-talked Jahirul talks us through the process of animating a bouncing ball in Maya



Craig A Clark

Putting trust in Craig's style choices, this issue he demonstrates how to model a fancy Rolex Yacht-Master II watch



Dmitry Cheremisin

Ukrainian artist Dmitry has joined forces to offer his expert tips and tricks for beautiful and true-to-life skin



Filippo Veniero

Filippo reveals how to keep your costs down by creating realistic renders using the finest open-source software around



Tamas Gyerman

Tamas has been a CINEMA 4D devotee since he was 12, so there are few better to learn from about its particle effects



Jamie Gwilliam

3ds Max specialist Jamie reveals how to simplify the process of controlling multiple textures without breaking a sweat



Orestis Bastounis

Orestis puts his tech expertise to the test, reviewing four workstations that won't put a huge dent in your bank balance



Adam Benton

Are CINEMA 4D R14's new features a worthy improvement on its predecessor? Adam unpacks the latest iteration

# 3D Artist

Imagine Publishing Ltd  
Richmond House, 33 Richmond Hill  
Bournemouth, Dorset BH2 6EZ  
+44 (0) 1202 586200  
Web: [www.imagine-publishing.co.uk](http://www.imagine-publishing.co.uk)  
[www.3dartistonline.com](http://www.3dartistonline.com)  
[www.greatdigitalmags.com](http://www.greatdigitalmags.com)

### Magazine team

Deputy Editor **Lynette Clee**  
[lynette.clee@imagine-publishing.co.uk](mailto:lynette.clee@imagine-publishing.co.uk)  
01202 586239  
Editor in Chief **Jo Cole**  
News Editor **Chris McMahon**  
Sub Editor **Tim Williamson**  
Senior Designer **Chris Christoforidis**  
Head of Publishing **Aaron Asadi**  
Head of Design **Ross Andrews**

f 3dartistmagazine

t @3DArtist

### Contributors

Jahirul Amin, Orestis Bastounis, Adam Benton, Dmitry Cheremisin, Craig A Clark, Jamie Gwilliam, Tamas Gyerman, Sean Hargreaves, Chris Kowal, Kurt Papstein, David Scarborough, Filippo Veniero, Poz Watson, Richard Yot

### Advertising

Digital or printed media packs are available on request.

Head of Sales **Hang Deretz** 01202 586442  
[hang.deretz@imagine-publishing.co.uk](mailto:hang.deretz@imagine-publishing.co.uk)

Advertising Sales Executive **Ryan Ward** 01202 586415  
[ryan.ward@imagine-publishing.co.uk](mailto:ryan.ward@imagine-publishing.co.uk)

### Cover disc

Head of Digital **Mat Toor**

Multimedia Editor **Steven Usher**  
[3daxtrahelp@imagine-publishing.co.uk](mailto:3daxtrahelp@imagine-publishing.co.uk)

### International

3D Artist is available for licensing. Contact the International department to discuss partnership opportunities.

Head of International Licensing **Cathy Blackman**  
+44 (0) 1202 586401  
[licensing@imagine-publishing.co.uk](mailto:licensing@imagine-publishing.co.uk)

### Subscriptions

Head of Subscriptions **Lucy Nash**  
01202 586443  
[lucy.nash@imagine-publishing.co.uk](mailto:lucy.nash@imagine-publishing.co.uk)

To order a subscription to 3D Artist:

UK 0844 249 0472

Overseas +44 (0) 1795 592951

Email: [3dartist@servicehelpline.co.uk](mailto:3dartist@servicehelpline.co.uk)

6-issue subscription (UK) – £21.60

13-issue subscription (UK) – £62.40

13-issue subscription (Europe) – £70

13-issue subscription (ROW) – £80

### Circulation

Head of Circulation **Darren Pearce** 01202 586200

### Production

Production Director **Jane Hawkins** 01202 586200

### Founders

Group Managing Director **Damian Butt**  
Group Finance & Commercial Director **Steven Boyd**  
Group Creative Director **Mark Kendrick**

### Printing & Distribution

Printed by William Gibbons & Sons Ltd, 26 Planetary Road, Wellingborough, West Midlands, NN13 3XT

Distributed in the UK & Eire by Seymour Distribution, 2 East Poultry Avenue, London EC1A 9PT 020 7429 4000

Distributed in Australia by Gordon & Gotch, Equinox Centre, 18 Rodborough Road, Frenchs Forest NSW 2086

+61 2 9972 8800

Distributed to the rest of the world by Marketforce, Blue Fin Building, 110 Southwark Street, London SE1 0SU

020 3148 8105

### Disclaimer

The publisher cannot accept responsibility for any unsolicited material lost or damaged in the post. All text and layout is the copyright of Imagine Publishing Ltd. Nothing in this magazine may be reproduced in whole or part without the written permission of the publisher. All copyrights are recognised and used specifically for the purpose of criticism and review. Although the magazine has endeavoured to ensure all information is correct at time of print, prices and availability may change. This magazine is fully independent and not affiliated in any way with the companies mentioned herein.

ip  
IMAGINE  
PUBLISHING

© Imagine Publishing Ltd  
2012  
ISSN 1759-9636z

PPA  
recycle  
When you have finished with  
this magazine please recycle it.

Sign up, share your art and chat to other artists at  
[www.3dartistonline.com](http://www.3dartistonline.com)



# Reveal Your Powers

© Olly - fotolia.com

## VFX & ANIMATION WITH A PROVEN AWARD-WINNING TRACK RECORD

- **Production-proven** Integrated Renderer
- **Super Fast** Bullet Dynamics
- **Simple** Object Fracturing
- **Incredible** Instancing
- **Innovative** Genoma Rigging System
- **Exciting** New Flocking Features
- **Integrated** Python Scripting
- **Robust** ZBrush GoZ™ Support
- **Effective** Unity Game Engine Support
- **Powerful** Geometry Cache System (MDD & Autodesk® Geometry Cache)
- **Rock-solid** FBX I/O for Rigs, Geometry, Lights, and Camera
- **Flexible** Stereoscopic Camera



**NewTek**

# LightWave™ 11.5

[www.lightwave3d.com](http://www.lightwave3d.com)



# Contents

What's in the magazine and where

## News reviews & features

### 10 The Gallery

A hand-picked selection of beautiful and inspiring artwork

### 18 Community news

Keep up with all the latest news and happenings in the world of 3D

### 22 Join the revolution

Explore the future as we check out the latest 3D printing achievements

### 24 Readers' gallery

The 3DArtistOnline.com's community art showcase

### 26 Have your say

Air your views, questions, problems and triumphs on these here pages

### 28 Feature: Lighting for storytelling

Explore the importance of lighting and learn how to use it effectively

### 38 Feature: Pushing animation forwards

As Sony Pictures Animation turns ten, we celebrate in retrospective

### 46 Interview: Kurt Papstein: An artist's evolution

A look at how this digital sculpting master has evolved with ZBrush

### 92 Review: Top workstations under £1,200

We check out four great systems for the more modest budget

### 96 Subscribe today!

Save money and never miss an issue

### 98 Review: CINEMA 4D R14

Find out the latest updates and features in this 3D software package

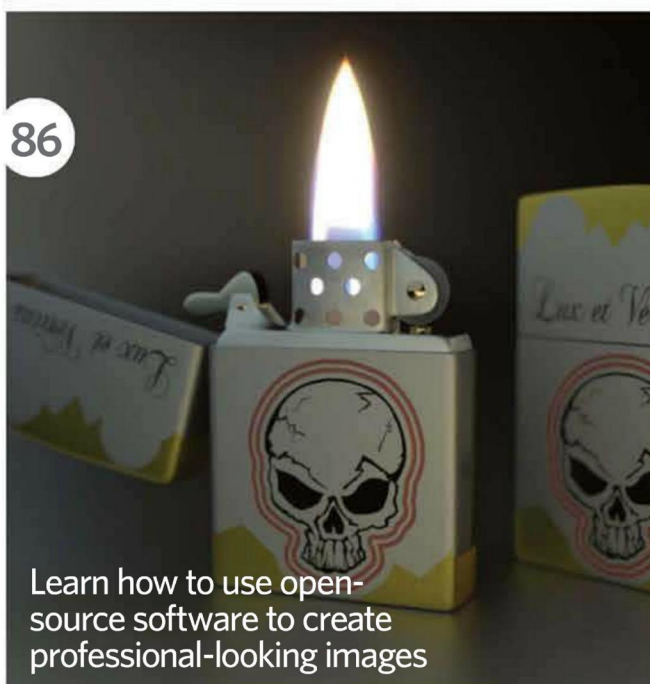
46

## Evolving with ZBrush

“Before ZBrush I hated 3D modelling. It was a tedious process that made me feel like a robot, not an artist”

Kurt Papstein talks about his creative journey Page 46

86



Learn how to use open-source software to create professional-looking images

Model different arch-vis styles with scripts in 3ds Max

68



8







**3DArtist** is now  
available on  
**iPhone & iPad**

**SAVE 40%**  
**SUBSCRIBE TODAY**



Turn to  
page 96  
for details



78

Discover how  
KeyShot Pro can  
help you achieve  
stunning realism



28

Explore how lighting can  
set the right mood



60

“ [I will] talk about the emphasis on  
the balance between detail and  
simplicity in a design such as this ”

Sean Hargreaves uses LightWave to teach us his Hollywood design secrets Page 60



## The workshop

Expert tuition to improve your skills

**74 Back to Basics: Animate a bouncing ball in Maya**

**78 Masterclass: Model and render a photorealistic watch in LightWave**

**82 Questions & Answers**

This section is for users who have some experience of 3D and want to learn more

**modo:** Shed light on your characters

**V-Ray:** Use shaders to create photoreal skin

**Blender:** Go pro with free software

**CINEMA 4D:** Enhance environments with particles

**3ds Max:** Texture control

## workspace

Industry news, career advice & more

**102 Industry news**  
The latest announcements and releases

**105 Course Focus: 3D Creature Sculpting**  
CGWorkshops training by Bryan Wynia

**106 Studio Access: Leviathan**  
We talk projection mapping with this small studio

**108 Project Focus: 'A Fox Tale'**  
Four students from France produce a quality animation

**110 Industry insider: Toni Bratincevic**  
Charting the path from self-taught artist to senior environment artist at Blizzard

## The studio

Professional 3D advice, techniques and tutorials

**36 I made this: Baboosh, Hugo Leygnac**

Recalling the Middle East with an atmospheric environment



**52 Step by step: Create striking characters**

ZBrush expert Kurt Papstein reveals ZBrush 4R4's secrets



**58 I made this: Memory, Yonglin Yao**

A heartfelt scene inspired by memory and loss



**60 Step by step: Sci-fi interior creation**

Craft starship cockpits with an experienced Hollywood designer



**66 I made this: House in Alentejo, Sérgio Merêces**  
A farm environment with a contemporary twist



**68 Step by step: Model with scripts in 3ds Max**

Knock your arch-vis modelling skills into shape with Chris Kowal



## With the Disc

- Over five hours of video tuition
- Arch-vis and sci-fi models
- Free 3ds Max scripts
- High-res skin textures
- Tutorial files - plus more!

Turn to page 112 for  
the complete list of  
the disc's contents

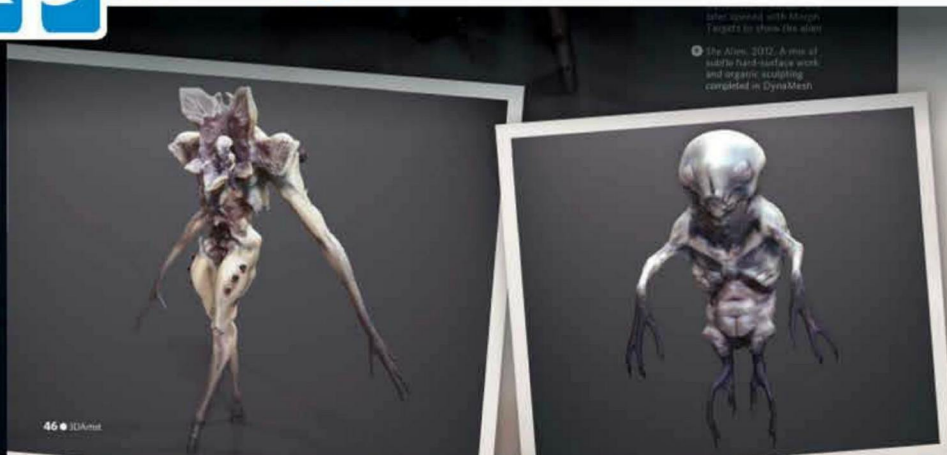






Apple Newsstand

Great digital magazines on ✓ iPad ✓ iPhone



**A** s an artist, we're naturally motivated to seek out the key ingredients that will help us bring ideas to reality in the most fluid, creative ways possible – no matter what the medium. For Kurt Papstein, the magic struck when he discovered a Wacom tablet for the first time. When ZBrush hit his radar, things truly started to snowball.

An avid fan of comic books and videogame characters at school, Kurt was often found sketching goofy drawings of dinosaurs and cartoons. The very idea of making a living from his passion back then was inconceivable; it was too unimaginable, too impractical and too expensive. But following a call from his loving parents to art school to set up a phone interview, Kurt was pushed into gear and onto a road that would lead him on quite a journey.

Staying on the right path was helped immensely by keeping active in online artist communities. Before learning about sites like ConceptArt.org, deviantART and CGTalk, Kurt was a regular visitor to

GTForum.com mostly because he was replicating western styles and developing his own for a web comic. After becoming known in the community as 'guy', he felt an urge to move for a long time that KFToon from a different part of my life associate with anymore. "Kurt, not like shedding a baby name gave you, but that someone long time ago."

Rebranding himself under pseudonym Ikameka, we're Kurt Papstein 2012. The moniker that has "somewhere he was knows how he wants to get many these may just be silly names, for Kurt it has given start afresh, to step into the show it exactly what he's cap couldn't help but take the opportunity to find out first-hand what inspires and pushes Kurt to be the best



Go digital today

- Fully interactive editions
- Download direct to your device
- Save up to 40% off the regular price
- On-sale worldwide the same day as the print version

WorldMags.net



✓ Android phone ✓ Android tablet ✓ Apple Mac ✓ Windows PC

Save  
up to  
**40%**  
off regular print  
prices



Download and  
enjoy over 20 great  
magazines on your  
favourite topics...

- Technology • Creativity
- Videogames • Sci-fi
- Science & knowledge
- Digital Photography

# Enjoy great magazines on every device from one amazing website

Get your digital copies now at

**[www.greatdigitalmags.com](http://www.greatdigitalmags.com)**



WELCOME TO

# THE GALLERY

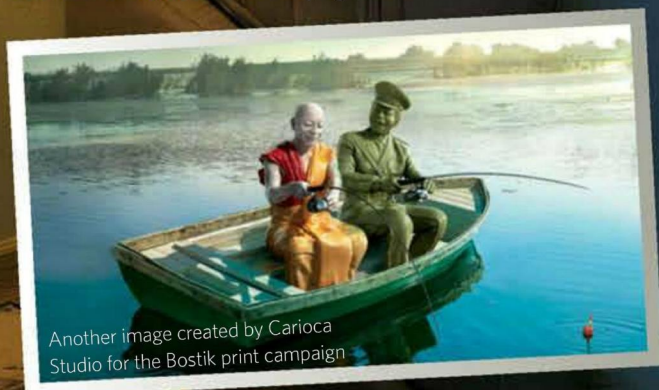
Seven pages of great artwork from the 3D community

*Images we love!*



“ The brief came from the DDB Johannesburg agency to create visuals... [using the slogan] ‘All-material adhesive. For stronger bonds’... We had real-life characters that we photographed on location as reference [before modelling] them as closely as possible ”

**Soufian Moumene lead 3D artist at Carioca Studio, Bostik Print Campaign, 2012**



Another image created by Carioca Studio for the Bostik print campaign



Have an image you feel passionate about? Get your artwork featured in these pages  
Create your gallery today at **www.3dartistonline.com**

Or get in touch...  3dartist@imagine-publishing.co.uk  @3DArtist  Facebook.com/3DArtistMagazine



Artist info



#### Carioca Studio

Carioca Studio is based in Bucharest, where Sofian Moumene is the lead 3D artist

**Personal portfolio site**  
[www.carioca.ro](http://www.carioca.ro)

**Country** Romania

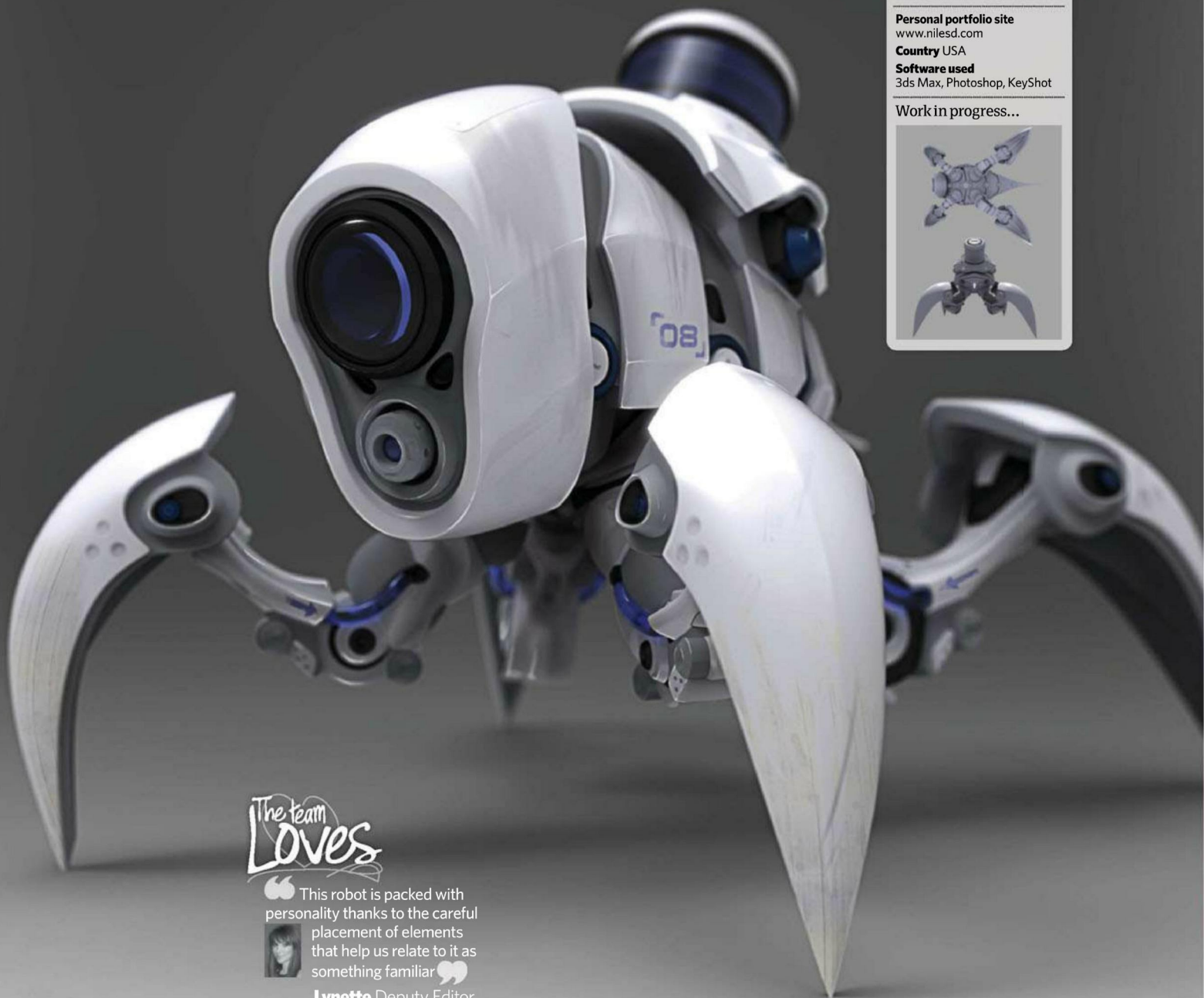
**Software used**  
3ds Max, ZBrush, Photoshop

Work in progress...



See your  
artwork here...  
Create a gallery today at  
**3DArtist  
online**.com  
Share your art, comment  
on other artists'  
images





Artist info



**Niles Doubleday**

Niles is currently working as an environment artist at Airtight Games, creating assets using Maya and Photoshop

**Personal portfolio site**  
[www.nilesd.com](http://www.nilesd.com)

**Country** USA

**Software used**  
3ds Max, Photoshop, KeyShot

Work in progress...



The team  
**Loves**

“ This robot is packed with personality thanks to the careful placement of elements that help us relate to it as something familiar ”



**Lynette** Deputy Editor

“ I enjoy making high-res models for rendering in my spare time. Primarily a game artist, it's nice to take a break from worrying about game engine constraints and just be creative! ” **Niles Doubleday**, *Exploration Probe*, 2012



OPEN

THE GALLERY



Artist info



**Miguel Leonardo Hernandez Urbina**

Miguel is a professional graphic designer and a graduate of the University of Bogotá Jorge Tadeo Lozano

**Personal portfolio site**  
[www.miguelilustracion.blogspot.co.uk](http://www.miguelilustracion.blogspot.co.uk)

**Country** Colombia

**Software used**  
 Maya, Mudbox, Photoshop

Work in progress...



The team Loves

“ This is quite an imaginative take on what an evolved lobster might look like! Just as impressive is the backdrop - it gives the image a real sense of place and atmosphere ”



**Chris** News Editor

WorldMags.net

Page 13

ML



Artist info



**Meats Meier**

An independent artist and animator working in Los Angeles, California

**Personal portfolio site**  
[www.3dartspace.com](http://www.3dartspace.com)

**Country** USA

**Software used**  
ZBrush 4R4

Work in progress...



The team  
**Loves**



Meats Meier is a key inspirational figure in the community, so we were pleased to see his excitement for Mesh



Insert brushes in ZBrush 4R4 with this fantastic render. Check out those tiny skull teeth!

**Lynette** Deputy Editor

“ This piece was created while testing out the wonderful new features in ZBrush R4R. A skeleton brush was set up using the Mesh Insert brushes and drawn on the skull model ”

**Meats Meier**, *Skeleton Skull*, 2012



# The team Loves

“ This image expertly showcases the potential of Mudbox in the hands of a talented artist. The man and woman are immaculate, and their clothes also demonstrate immense detail ”

Chris News Editor

## Artistinfo



### Jesse Sandifer

Jesse is a self-taught, award-winning digital artist with 12 years of experience in CG

**Personal portfolio site**  
[www.chickwalker.com](http://www.chickwalker.com)

**Country** USA

**Software used**  
 Mudbox, 3ds Max,  
 Photoshop, V-Ray

Work in progress...



“ I was asked by Autodesk to create two classic 18th Century characters... I'm used to doing more monster and creature-type work and this was a nice break... to try and do something more romantic and beautiful ”

Jesse Sandifer, *Just Before the Kiss*, 2012



The team  
Loves

“This is sci-fi with a difference – dark and exotic rather than sleek and high-tech. We love the mechanical straps enveloping the face of this creation; it’s somehow ominous and attractive at the same time.”



Chris News Editor

Artist info



**Riyahd Cassiem**

Riyahd is a Johannesburg-based visual artist and co-founder of Eight Bit Octopus

**3DArtist**

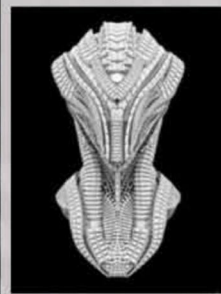
Username: riyahdc

Personal portfolio site  
[www.8bo.org](http://www.8bo.org)

Country South Africa

Software used  
ZBrush, KeyShot, modo,  
Photoshop

Work in progress...



“Tech Head was an experiment to create a series of mech head concepts and [to] try out different sculpting and rendering techniques using different applications.”

Riyahd Cassiem, *Tech Head*, 2012



# Subscribe today & get 6 free issues\*



Special offer for US readers

**Don't risk missing an issue**  
**Subscribe today and save \$\$\$**

- Subscribe and pay just \$104 for 13 issues
- Receive the mag before it appears in the shops
- Get each issue for as little as \$8 (usually \$14.99)
- Never miss an issue

## 3DArtist

To order by telephone, call  
**+44 (0) 1795 592951**  
and quote the code **USA4**

To order online, visit  
**www.imaginesubs.co.uk/tda**  
and enter the code **USA4**

Artistinfo



**RenPeng Dong**

Personal portfolio site  
[www.olderhyme.cgsociety.org](http://www.olderhyme.cgsociety.org)

Country China

**Software used**

3ds Max, Maya, ZBrush,  
Mudbox, Photoshop, V-Ray

I saw an image on a website that was like a kind of transparent man blending with his background, which brought me this great idea... [I] decided to show the feeling of part drying paint, part real, part plaster

**Non-US readers turn to page 96**

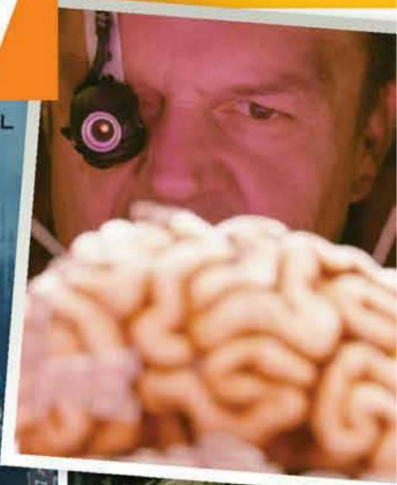


This is a US subscription offer. You will actually be charged £65 sterling for an annual subscription. Your subscription will start from the next available issue. This offer expires 31 January 2013.  
\*6 free issues refers to the USA newsstand price of \$14.99 for 13 issues which comes to \$194.87, compared with \$104 for a subscription.

www.Mags.net



Following three animated short films, 'Tears of Steel' is the Blender Institute's first attempt at a live-action open-movie project



'Tears of Steel' is the first project to use Blender's new interactive GPU rendering engine, Cycles

## Open-source VFX movie

The Blender Institute's fourth short film project 'Tears of Steel' promises a bright future for the open-source software

**I**n 2005 the Blender Foundation started a unique experiment: invite several members of the Blender community to the Amsterdam offices to work on Project Orange, a collaborative movie with the express aim of improving the 3D, open-source, content-creation pipeline in Blender. The resulting film was 'Elephants Dream': a surreal and experimental short, and a huge creative success.

Seven years on, two more shorts completed, and the emerging Blender Institute is now on its fourth film created with open-source tools: 'Tears of Steel'.

The film tells an emotional sci-fi story with a rather modest origin. "It was a little bit by-the-numbers," admits director and writer Ian Hubert of the film's plot.

"We started with the guideline that it needed to be in Amsterdam, and be some sort of VFX-heavy sci-fi [film, and then we] just worked from there."

'Tears of Steel' proved to be the most challenging venture yet. While previous years saw designers work together on animated shorts, this year they

decided to film a live-action movie. "The main difference from previous open-movie projects was that this one was a VFX movie and as such we had to deal with actual footage," remarks Hubert. "The typical workflow for one shot usually started with tracking the camera motion and, if required, a hand or a head of one of the actors. The resulting tracking file was then used as a base for the scene layout as well as for masking and keying, resulting in the advantage that we could use those same tracked points for assisting with roto work."

**“The main difference from previous open-movie projects was that this one was a VFX movie and as such we had to deal with actual footage”**

**Ian Hubert, director and writer, 'Tears of Steel'**

Texture painting was mostly completed in GIMP and Krita, while for logos and other artwork Inkscape proved a valuable tool. But ultimately the project proved crucial for stimulating the further development of Blender. "We've had to develop and put to the test an entire HD VFX pipeline inside

### An open book

**Ian Hubert discusses the benefits and drawbacks of working on an Open Project and gaining constant feedback from the community...**

"Posting unfinished work can be difficult, especially when the usual inclination from blog readers is to judge the stuff we post as final," he says. "Getting comments criticising the lighting realism on OpenGL previews quickly teaches you to take everything with a pinch of salt, but occasionally we got very helpful feedback. When we were trying to figure out the colourspace pipeline, for example, the community was invaluable. We posted some raw 4k frames and they were able to direct us to the ACES colour space and give us lots of advice on how to interpret the thousands of 50MB frames..."

of Blender, figuring out colour space, 3D motion-tracking, the new compositor, colour grading and much more," details Hubert. "This was the first major project to implement Cycles (Blender's new interactive GPU rendering engine), so a lot of work went into optimising the path tracing and discovering how to work with new tools.

"Working with actual production files in a production environment is a great catalyst for testing out and improving new features," Hubert concludes. "Nearly all of the new developments from this project will be available in the next release of Blender."





## Fruit bowl

The Blender Institute has had great success with its previous Open Projects, each with a fruit-based code name. Here's a brief glimpse at Orange, Peach, Apricot and Durian

### 'Elephants Dream' (Orange)

This was the Blender Foundation's attempt at creating a short film using only Blender for 3D modelling, animating, and rendering. Several artists and animators from around the world were invited to collaborate on the project.

### 'Big Buck Bunny' (Peach)

For the second open-movie project, Blender developers enabled drastic improvements to the software in areas such as hair and fur rendering, UV mapping, the render pipeline and also skinning.



'Big Buck Bunny' was praised for its Hollywood-like quality of animation and spawned a spin-off videogame project the following year

### Yo Frankie! (Apricot)

Apricot differs from previous open Blender projects, using the free software to create a videogame spin-off of the short film 'Big Buck Bunny'. The game was designed and rendered using a mix of Blender and Crystal Space 3D.

### 'Sintel' (Durian)

This short went for a grittier tonal aesthetic under the direction of Pixar Animation Studios artist Colin Levy. Tweaks to the UI, the particle system, sculpting, shading, the render pipeline as well as constraints and smoke-simulation improvements were made as a result of the well-received short.

## Masterpiece 'Neteru'



Amanda Jessup uses a combination of Maya, ZBrush and Photoshop to create a vivid forest scene

Amanda Jessup

For her majestic snapshot of a fantastical woodland springing to life, artist Amanda Jessup found inspiration for this mesmerising forest scene in an old piece of work. "I unearthed an acrylic concept piece of mine that has some resemblance to a forest, albeit from an abstract point of view," Jessup says. "After coming down off of a number of modelling projects, I felt the desire to immerse myself next in an experimental piece, of sorts."

To create such detail in the foliage, Jessup painstakingly amassed a vegetal library of robust plant matter. "I embraced a technique that involves growing CG foliage in a most efficient way," she reveals. "After establishing the modular nurseries, I began snapping together petals, leaves, stems and branches of the same family type across the composition to create interesting combinations."

Maya was used for modelling the landscape, before applying ZBrush to define the character models. "[I used] ZSpheres in tandem with DynaMesh in ZBrush to block out, retopo, [as well as] high-res sculpt the primary arboreal entities," explains Jessup. "The final layout was rendered in mental ray in Maya. Photoshop and ZBrush aided in texture painting and various map generations in addition to [post-production]."

Neteru feels like an abandoned piece of art from *Pan's Labyrinth* with its various zoomorphic creatures bursting through the foliage



## 3D Sketchbook

### Anatomy awareness



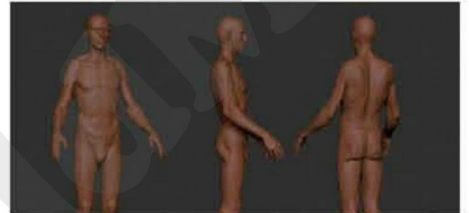
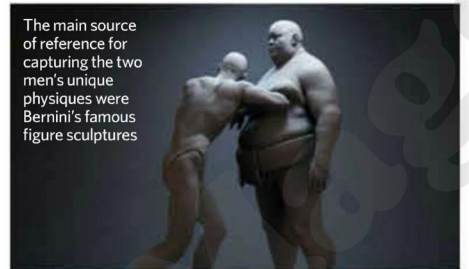
Mohammad Modarres discusses the creation of his wrestler image and the importance of contrast

Mohammad Modarres [www.mmodarres.blogspot.co.uk](http://www.mmodarres.blogspot.co.uk)

For his image of two diametrically-sized sumo wrestlers, 3D artist Mohammad Modarres wanted to emphasise the anatomical contrast between the two figures. "The aim of the project was to demonstrate awareness of anatomy through a 3D presentation," explains Modarres of this captivating image's origin. "I chose to show two different characters with a maximum amount of contrast, gathering as many reference images of sumo wrestlers and people with [skinnier] body types as I could."

The pose the two wrestlers are locked in gives instant gratification, depicting two bodies that are physically completely different. To create the impactful 3D design, Modarres sculpted both characters from scratch in ZBrush before using a mix of 3ds Max, V-Ray and Photoshop to get the contrasting figures perfect in the final render. "I tried to demonstrate the contrast not only in [the] characters' masses but also in their poses," he explains. "While the skinny character has a large amount of movements, the sumo guy is quite static which heightens the impact of the image."

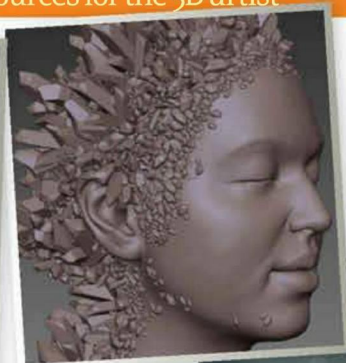
The main source of reference for capturing the two men's unique physiques were Bernini's famous figure sculptures



### Mohammad Modarres explains how others can create a similar piece of work

Having created a 3D model to exquisite detail, Modarres imparts advice for other artists wishing to create a similar image. "I think the best thing is just to focus on art principals as much as [you] can," he says. "Things like rhythm and balance aren't getting old any time soon!"





Nichols describes the process as a real pleasure, as he could easily jump between Maya and MARI to apply additional textural changes

SEE YOUR WORK HERE!  
**3DArtist Community**  
Contact Chris with your latest news at [chris.mcmahon@imagine-publishing.co.uk](mailto:chris.mcmahon@imagine-publishing.co.uk)

Artist spotlight

## Hollywood-standard 3D creations

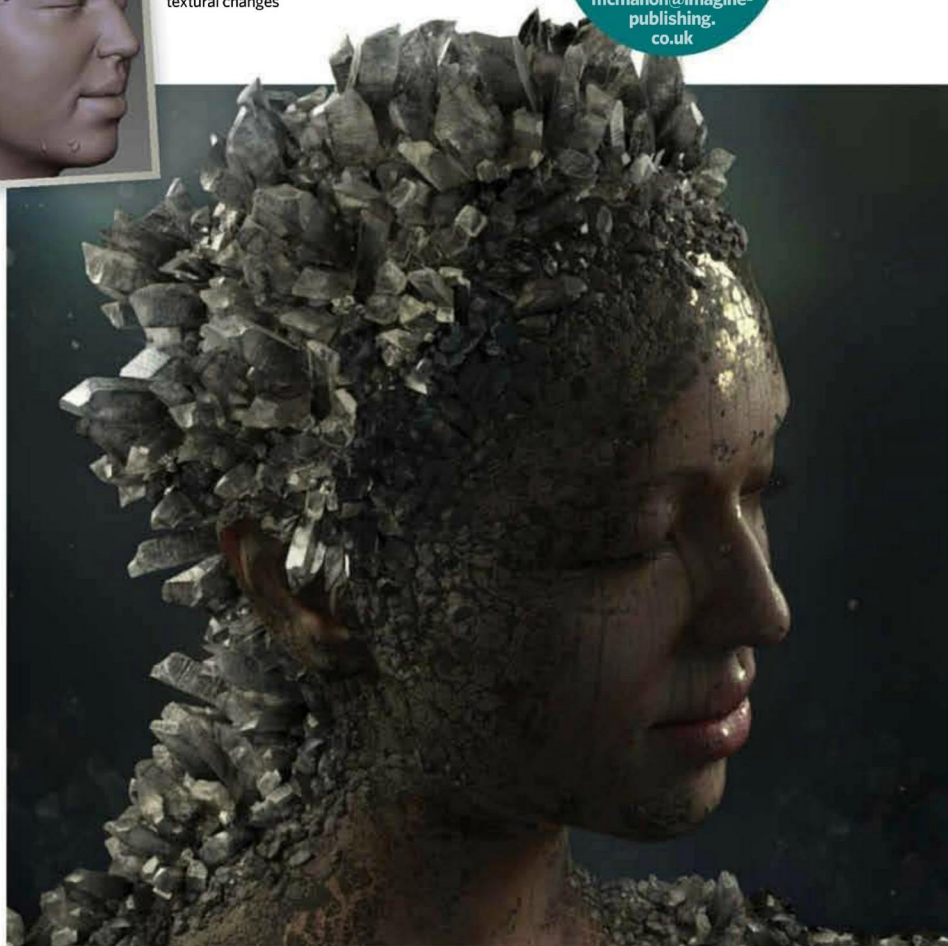


Chris balances his jobs in the film industry with personal projects...

Chris Nichols [www.porkpiesamurai.com](http://www.porkpiesamurai.com)

Chris Nichols has spent the last few years working on a multitude of high-profile Hollywood movies, including *Thor*, *Jack the Giant Killer* and *Ender's Game*. However, the Vancouver-based artist enjoys spending his private time sharpening his skills on personal projects he feels particularly passionate about. This is no exception with his recent 3D sculpture, *Ayco*. "I did the piece for my wife's first album cover," he enthuses. "With the image I wanted to reflect the elegance and poetry of the music and liked the idea of a transition from crystals to rock to dirt, and finally Eiko's face breaking through the surface."

Nichols relishes both the opportunity to stylistically experiment outside of work and collaborate with his wife Eiko. "The contrasts in the surface details were tricky," he explains of the album cover. "But MARI allowed me to see everything layered on in real-time as I was painting, so I could make creative choices on the fly and even show ideas to Eiko when she came to check it out."



Nichols took multiple reference photos of his wife Eiko for mapping skin textures, as well as a small collection of rock, dirt and mud images

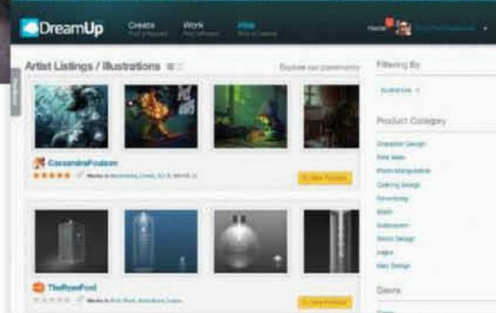
## DreamUP

deviantART invites artists to collaborate with its new website

DreamUP (<http://dreamup.com>) is deviantART's new business portal that enables artists to find designers for specific projects – whether to illustrate an album cover or create storyboards. "It offers the best collaboration tools that we feel are available on the web today," says deviantART lead product manager Chinmay Lonkar. "The entire collaboration process from the creation of the request through to submitting assets are much richer than what other sites provide." Users can set a pricing point and use existing deviantART tools like Stash to help illustrate the type of design they want. Ultimately, Lonkar hopes that it will offer exciting new opportunities to the community. "The tagline on the homepage says, 'It's made for creative professionals by creative professionals', and that really highlights how we're going about it," he adds.



Users can employ multiple designers to work on a project and break down incoming commissions into paid stages to track progress





 [Facebook.com/3DArtistMagazine](https://www.facebook.com/3DArtistMagazine)



## Blog watch

A guide to inspiring and informative blogs!



**Nukepedia**  
Everything you need to know about NUKE

Nukepedia is the perfect source to find out everything you need to know about post-production image compositor NUKE. From basic guides through to video tutorials, it's a hugely comprehensive resource for any novice looking to get to grips with the software or veterans interested in sharpening their skills. With NUKE 7 on the horizon, it'll no doubt prove to be an invaluable aid once the latest iteration is released.

[www.nukepedia.com](http://www.nukepedia.com)

 Do you have a favourite blog? Let us know!  
[Facebook.com/3DArtistMagazine](https://www.facebook.com/3DArtistMagazine)

# 3DArtist

www.3DArtistonline.com Practical inspiration for the 3D community

## What's in next issue



**Arch Tower**  
**Chris Kowal**  
Personal portfolio site:  
[www.chriskowal.com](http://www.chriskowal.com)

### Master atmospheric arch-vis scenes...

**Issue 48: on sale 7 November**

To buy your copy, visit  
[www.imagineshop.co.uk](http://www.imagineshop.co.uk)



Stuart Warren-Hill is looking forward to working on his next project, Holotronica, which combines electronic music with emerging 3D and holographic technologies

## behind the scenes Videogame art

**BFI and Nintendo collaborate to launch a 3D short film competition under the guidance of Sir Ridley Scott**

**The Vision is a unique competition initiated by BFI and Nintendo tasking entrants to create a 60-second film with a 'British Summer' theme using Nintendo's 3DS handheld console.**

Backed by Hollywood film director Sir Ridley Scott and judged by AV artist Stuart Warren-Hill and Senna director Asif Kapadia, the rather modest handheld device has proved inspiring for budding filmmakers. "Being able to do stop-frame animation in 3D and view your film instantly with a glasses-free screen, on a device that fits in the palm of your hand, was science-fiction stuff only five years ago," says Warren-Hill.

"The winning entry uses stop-motion animation and is quite a complex sequence of shots. One scene involves a tennis match where a ball comes out at you and another scene has origami horses that are created from a single sheet of newspaper."

Warren-Hill hopes that 3D filmmaking won't be dismissed as a fad and that 3D enthusiasts will embrace the simple capabilities of Nintendo's 3DS in the future. "I like the immediacy of the 3DS camera and being able to watch on a glasses-free screen," he remarks. "This is the future in our hands. Now I like that!"



# 3DArtist

online.com

Create your gallery, browse the artwork, chat with experts and artists and get tips and techniques at  
[www.3dartistonline.com](http://www.3dartistonline.com)



## Join the revolution

**Get in touch!**

Tell us about your 3D printing adventures and finds  
**facebook.com/3dartist**  
or **@3DArtist**  
on Twitter

### London's first 3D Printshow

Between 19 and 21 October, The Brewery will play host to London's first 3D-printing expo, featuring seminars, workshops and competitions as well as a glorious exhibition space for artists and designers to strut their 3D-printed stuff. In the evenings, a live show will turn the catwalk on its head, giving attendees the chance to check out mind-blowing new 3D-printed fashions, from clothes and hats to shoes and jewellery. The icing on the cake, though, has to be the world's first 3D-printed band, playing music written specifically for the show. Add this to 3D visual displays and the live show promises to be a showcase of cutting-edge technology at its absolute best.

Tickets to the 3D Printshow are available as Day, Weekend and Live Show passes – student, child, family and limited VIP options are also available. From as little as £15 entry, this is one of the few 3D technology shows that 3D artists, hobbyists, fans and the general public can afford to attend. To find out more (and get very, very excited) visit the official website over at <http://3dprintshow.com> for a glimpse into our 3D future.



© Matthew Plummer-Fernandez

**PRINT SHOW  
LONDON 2012**



© Jordan Hodgson

The 3D Printshow is packed with seminars, workshops and live demos to help you interact with the experts

### Geek Chic

Marcello specs on Shapeways



When Vert Design in Australia was tasked to reproduce the glasses worn by Marcello Mastroianni in the Fellini movie *8½*, the team realised 3D printing was the ideal production method.

"This allowed us to design without the restrictions of conventional manufacturing methods," Andrew Simpson of Vert Design explains. "The frames are available (but not restricted to) Black Strong and Flexible Plastic."

The team designed the specs using SolidWorks, an UP! 3D desktop printer, and currently distributes the product through [www.shapeways.com](http://www.shapeways.com). "By far the best aspect is the instant quote system where models can be uploaded and a price is given straight away," Simpson comments about Shapeways. "We are also a big fan of the metal sintered material as we have used this to create parts that would be nearly impossible to [make with a] machine!"

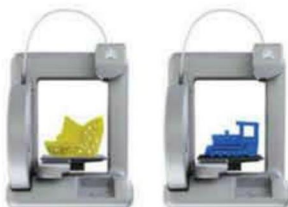
Visit [www.vertdesign.com.au](http://www.vertdesign.com.au) and [andrewsimpson.net](http://andrewsimpson.net) and check out the glasses on Shapeways at [www.shapeways.com/shops/vertdesign](http://www.shapeways.com/shops/vertdesign).

### Print your models at home

**Cube is the small, quirky 3D printer that will fit comfortably on your desktop**

Imagine being able to bring your digital creations in striking colours up to 14cm in size, without leaving your desk. The Cube is a Wi-Fi Plast Jet Printing (PJP) 3D printer, with a print space of up to 14 x 14 x 14cm and plug-and-print cartridges that will each print up to 14 medium-sized creations. There are currently ten vibrant colours available for the Cube, enabling plenty of freedom to invent your wildest dreams!

To run the Cube, you'll need a PC with at least a multi-core processor – 2GHz or faster per core and 2GB system RAM. Find out more at <http://cubify.com>. Prices start at \$1,299 US.



The Cube is a cute and accessible option to help you express your own digital creations in the real world



3D prints will pop with an exciting new range of material colours

### More colours for your prints

**Nine new colours are now available from the MakerBot Materials team**

**At MakerBot Industries, the fun literally never stops.** The Materials group has certainly been busy again, generating a batch of colourful new materials to delight the MakerBotting community. Slate Gray, Stone, Helsinki Sky, Green Sea, Grape Candy, Navy Wool, Dark Sanguine Red, Acid Lake and Deep Dark Teal are a selection of rich and realistic colours to help bring models to life.

Material spools are available from \$48 US. The MakerBot Replicator 3D printer is priced at \$1,749 US. Find out more at <http://store.makerbot.com>.





create art in unexpected places







## Pictures of the week

THESE ARE THE IMAGES THAT WERE AWARDED PICTURE OF THE WEEK IN THE LAST MONTH

### ● Rodofin

» **Alfa Smyrna**

**Alfa says:** "I am very much interested in mythology and [when] I was reading about [the Greek goddess] Eos... [the] beautiful descriptions inspired me... Eos is the goddess of dawn"

**We say:** "The lighting is absolutely stunning in this piece. It's a very delicate scene with lots of wonderful materials and texture"

### ● Raspberries Splash

» **Damian Machnik**

**Damian says:** "[The] water wasn't created by any liquid plug-ins, only [a] simple mesh"

**We say:** "This is so fresh and vibrant - it looks good enough to eat (and drink)!"

### ● Norwegian family house

» **Matúš Nedecský**

**Matúš says:** "Norwegian architecture is [some] of the most beautiful and inspiring in the world. This house was designed and visualised as a personal project for an inspirational dream house. [I used] Rhinoceros, V-Ray and Photoshop"

**We say:** "Matúš clearly has a great eye for composing architectural shots; this has been set up perfectly to give the build a real sense of how it occupies space and works with its surroundings"

### ● Mausoleum

» **Steffen Wiesener**

**Steffen says:** "A stone mausoleum, with a majestic dome and a portico resting on huge monoliths. It was erected by a Lord to his only son, John, who died in 1775 aged 20"

**We say:** "We love the atmospheric lighting captured in this image, which gives an early-morning feel and offers the viewer a sense of hope"

Share your art  
Register with us today at

**3DArtist**  
online.com

[www.3dartistonline.com](http://www.3dartistonline.com)  
to view the art and chat  
to the artists







Picture  
of the  
month

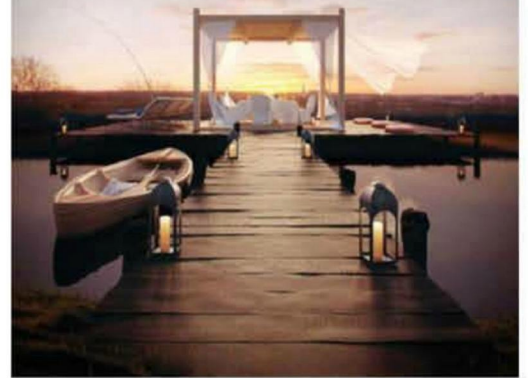


## Cold, cold heart

» **Thiago Lima**

**Thiago says:** "The main theme is 'a place [that] inspires you'... I've modelled [everything] including the... chair, wire by wire"

**We say:** "A great composition and wonderful lighting help pack this beautifully-modelled scene with atmosphere"

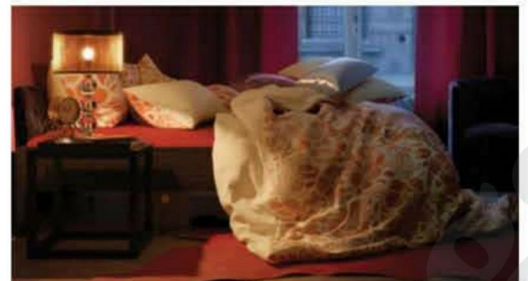


## Jack

» **Mauricio Salgueiro**

**Mauricio says:** "A slightly threatening character representing the Jack figure from [playing] cards. 3ds Max, ZBrush, mental ray [and] Photoshop [were used]"

**We say:** "Jack is awesome. While he's adorned with the finest fabrics and the greatest hair of all time, it's his expression that we truly love – what a pout!"



## Bed

» **Albert Farrakhov**

**Albert says:** "[I used] 3ds Max, V-Ray [and] Photoshop. At the beginning, [the] work was only for a portfolio, but... it became more significant"

**We say:** "The materials in this are fantastic! Albert has managed to create some highly impressive drapes and folds. Beautiful!"



## Prehistoric Spikes

» **Kurt Miller**

**Kurt says:** "A charging Styracosaurus would attack or defend with its head held down, just like a rhinoceros today"

**We say:** "The action in this image is what makes it so special; you get a real sense of story from the fantastic camera angle and framing"



# Have your say

Tweet or get in touch with us on Facebook to share your thoughts, opinions and proudest projects

## You tell us



Facebook.com/  
3DArtistMagazine

### What originally made you want to get into 3D?

**Lowri Wyn Williams:** For me, I was in my early teens, sketching characters and creatures down on paper during breaks at high school. Then *The Lord of the Rings* came along. Now at the age of 21, I'm approaching my final year doing digital sculpting and character art for my final major project at Swansea MET's School of Digital Media. I've never looked back since

**Hendrik Freuer:** For me, it was *Jurassic Park* when I was a kid. That's when I started to get interested in 3D. The second big impact was *Avatar*. That probably was the point when I decided to get more serious

### What are your top software choices right now? Let us know and you may just find tutorials for 'em in upcoming issues!

**Ron Marshall:** ZBrush. The more I use it the less I need any other software except PS... If ZBrush ever implements V-Ray they will rule the world! Lol

**Liam Stopher:** It would be nice to see tutorials for... Sculptis and Blender. Give the people a chance who can't afford or get there hands on the more advanced software

**Kelly McKinney:** 3D-Coat, Blender, Poser, Hexagon, PaintShop Pro, TwistedBrush, Photoshop Elements, GIMP... I would like to see someone come up with tutorials for newbies and hobbyists that are independent of particular software

**Sam Conlogue:** 3ds Max, mental ray, V-Ray, Maxwell Render, RayFire, After Effects, Photoshop, ZBrush, SynthEyes. I think the community could benefit from more articles on start-to-finish workflow for animation projects... That or a RayFire/Pflow tut [on] blowing stuff up!

**Jenny Gauci:** Some NUKE tutorials would be nice; everything needs to be composited in the end!



Check out our 100 per cent open-source software tutorial on page 86



digital-tutors

www.digitaltutors.com is a learning resource site boasting a library of 17,000 video-based CG lessons

**THE AUTHOR OF THIS ISSUE'S STAR LETTER WINS A MONTH'S FREE SUBSCRIPTION TO DIGITAL-TUTORS WORTH \$45**

## A yearnin' for learnin'

Hello 3D Artist! My name is Carlo Jaconelli and I'm currently nearing the end of my 3D studies at Glasgow Caledonian University here in Scotland (it was great to see it name-dropped in your Explore The 3D World feature [in issue 44]). I'm doing an MA in 3D Design for Virtual Environments.

I discovered your magazine about a year ago at the start of this course and at that time I didn't understand any of the technology (or indeed, terminology) behind the multitude of amazing images you publish. I had very little experience in working with 3D back then... I've been shocked by how much I've learned in such a short period of time.

Right now I'm working on finishing my master's... delving even deeper into the world of 3D [and] experimenting with motion capture and stereoscopic 3D effects. Even though it's hard work, I love every minute of it and I'm glad to have a monthly companion like 3D Artist to join me for the ride.

## Star letter



This is one of the works Carlo has produced this year on his course at Glasgow Caledonian University

At least now I can read your excellent magazine cover to cover with a greater understanding of the work that goes into the final images. I definitely want a career in 3D and I'm excited about what the future holds!

**Carlo Jaconelli BSc (Hons), by email**

*Thanks for the kind words Carlo, it's great to hear you're enjoying your studies! As our Star Letter-winner, you can treat yourself to one month's free access to the fantastic Digital-Tutors, to help you push your skills even further. We look forward to seeing more from you soon, keep up the awesome work!*



## Offshore renders



After reading a few issues of 3D Artist magazine I took the courage to send you one of my models... This picture is part of an offshore procedure animation. Tools: 3ds Max 2013 for modelling and UV maps, DreamScape for sea; iray for rendering and lighting; Photoshop for sun, glares and textures.

**Luis Mestre, by email**

*Thanks Luis, we hope you'll be an inspiration to our other readers to share their proudest projects with us. Keep up the great work!*



## Tutorial files?

I have downloaded the iPad edition of [issue 44] but where can I download the HIP file from the Q&A Learning Liquids?

**Thies, by email**

*Hi Thies, the tutorial files for all issues are hosted right here: [www.3dartistonline.com/news/tutorial-files](http://www.3dartistonline.com/news/tutorial-files).*



[www.3dartistonline.com](http://www.3dartistonline.com)



@3DArtist



[Facebook.com/3DArtistMagazine](https://www.facebook.com/3DArtistMagazine)



■ PHOTOMANIPULATION ■ GRAPHICS ■ NEW MEDIA ■ PHOTO EDITING ■ DIGITAL PAINTING ■ TYPOGRAPHY

# WANT TO MASTER PHOTOSHOP?

IN EVERY ISSUE: ■ PHOTOMANIPULATION ■ GRAPHICS ■ NEW MEDIA ■ PHOTO EDITING ■ DIGITAL PAINTING ■ TYPOGRAPHY

**FREE DISC**

52 PAGES OF TOP TECHNIQUES

## Advanced Photoshop

The magazine for Adobe® Photoshop® professionals

GRAPHICS

### WORK WITH SHAPES IN CS6

Expert tricks for using the Pen tool and blending modes

FEATURE

### RETRO PHOTO EFFECTS

We look at the rise of retro and show you how to create authentic effects in CS6

HOW TO:

- Build web assets in CS6
- Learn futuristic manipulation
- Use industry-standard retouching
- Apply photographic toning gradients

DIGITAL PAINTING

### MASTER TEXTURES

Work with brushes to create an out-of-this-world image

DESIGN YOUR OWN BRUSHES EXCLUSIVE VIDEO GUIDE

www.advancedphotoshop.co.uk

5 retro effects tutorials  
50 premium brushes  
45 free stock images

TYPOGRAPHY

### STRIKING TYPE

Design energetic type using photos



**FREE DISC!**

ON THIS ISSUE'S DVD:

- PRO VIDEO GUIDES
- LEARN THE TOP PHOTO EFFECTS
- CREATE YOUR OWN CUSTOM BRUSHES
- STOCK IMAGES
- 45 FREE IMAGES
- BONUS CONTENT
- EXCLUSIVE WORKSHOPS TUTORIALS
- TUTORIAL PROJECT FILES

**101**

## Advanced Photoshop

The magazine for Adobe® Photoshop® professionals



### Inside every issue:

- ▶ Over 45 pages of pro techniques
- ▶ Inspirational artwork and interviews
- ▶ In-depth features on cutting-edge trends
- ▶ The latest creative products reviewed and rated



@advancedpshop



/AdvancedPhotoshop

Advanced  
**Photoshop.co.uk**

## Get your copy today

✓ Print ✓ iPad  
✓ iPhone ✓ Android



Quality print edition on sale at **imagineshop.co.uk**

Interactive digital edition on all platforms on sale at

**www.greatdigitalmags.com**

Also available at all  
good newsagents





**Name**  
Richard Yot

**Website**  
[www.itchy-animation.co.uk](http://www.itchy-animation.co.uk)

**Location** London, UK

**Expertise** Lighting, texturing, character design and illustration

**Favourite tools for expert lighting** modo, Photoshop

**Bio** Richard is a professional illustrator with a passion for lighting and staging scenes to effectively tell a story. He is also the author of the successful book, *Lighting For Visual Artists*

## With the Disc

• A PSD file to help you experiment with lighting effects





“ Shine your lights on  
the things that matter ”

# LIGHTING FOR STORYTELLING

In visual art the main purpose of lighting is to focus the viewer's attention and drive the story. Richard Yot explains how...

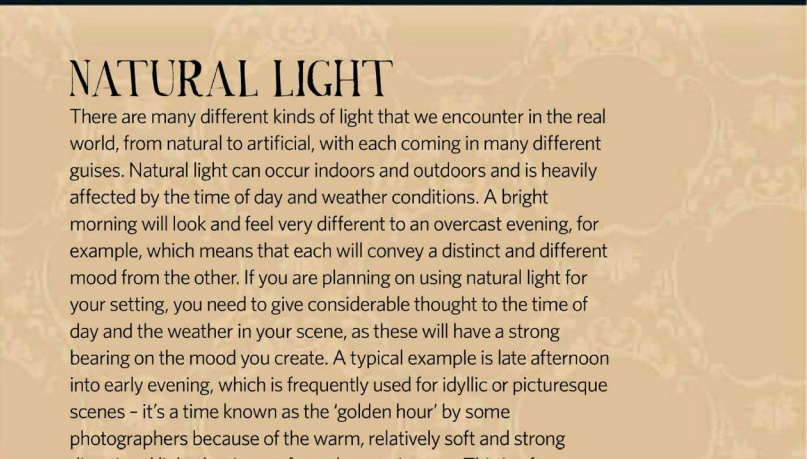
**L**ighting plays a key role in conveying themes and story. It's important to look beyond the purely functional aspects of lighting in order to harness its more interesting and creative aspects when it comes to creating images. Light doesn't just make your scenes visible, it's also a crucial purveyor of staging and emotion. It can be used not only to direct the viewer to the key parts of a scene, but also to heighten feeling, and as such it should be used with purpose and careful application.

On the most basic level the lighting of a scene should be used for staging purposes; for example on a theatre set a spotlight is aimed at the actors that are delivering dialogue to isolate them from their surroundings, so that the audience's attention is focused on them rather than on

anything else. In this context the audience suspends their disbelief and won't question the incongruous light, because all attention is wrapped around the unfolding story. You might think that in less-staged settings, such as a feature film, the spotlight device is not feasible, whereas in fact it is widely used, it's just done more subtly.

Understanding the spotlight device and its more subtle derivatives is down to contrast, and how contrast in a scene is a focal point for the eye – a concept that artists have used for centuries. The eye is always drawn to the point of highest contrast in a scene, so it needs to be controlled and used deliberately if you want your audience to focus on what's important and not be distracted by irrelevant details. In plain terms: you shine your lights on the things that matter.





## NATURAL LIGHT

There are many different kinds of light that we encounter in the real world, from natural to artificial, with each coming in many different guises. Natural light can occur indoors and outdoors and is heavily affected by the time of day and weather conditions. A bright morning will look and feel very different to an overcast evening, for example, which means that each will convey a distinct and different mood from the other. If you are planning on using natural light for your setting, you need to give considerable thought to the time of day and the weather in your scene, as these will have a strong bearing on the mood you create. A typical example is late afternoon into early evening, which is frequently used for idyllic or picturesque scenes – it's a time known as the 'golden hour' by some photographers because of the warm, relatively soft and strong directional light that is cast from the evening sun. This is often complemented by blue shadows filled by the evening sky.

On the other hand, you could set a scene in the harsh light of midday sunshine, or the dappled light of a forest, or a hazy fog – any of these scenarios will give a distinct mood and have impact on your scene, and each will convey a different message to your audience.

Natural light can also be used indoors as light cast by windows, and again this comes in several different flavours and can be useful for symbolic or storytelling purposes. The most famous is the north light that was favoured by artists prior to electric lighting, because the light from a north-facing window is soft, diffused and relatively constant throughout the day, enabling artists to work for the longest possible time without the light changing. This soft light has real beauty, meaning it was – and still is – favoured for aesthetic, as well as practical, reasons.

Window light that also has some direct sun is very different from the diffuse north light, with much higher contrast that can be used to silhouette a character for instance, or the shaft of sun could be used to pick out an important part of the scene, and with far more dramatic results than using softer lighting. Another approach is to consider available light, meaning light that isn't enhanced by flash or fill lights, and work solely with what is there, no matter how limiting. This can give a gritty and realistic feel, which can be replicated in 3D with careful control of lighting conditions. The level of exposure is of particular impact; depending on how much available light hits the camera you can often achieve dark and high-contrast scenes.

“Our eyes are always drawn to the areas of highest contrast in a scene, so it's important to control the contrast in your scenes”





# MODERN LIGHTING WORKFLOWS

Real-time previews and relighting in post are the most efficient workflows - gone are the days of endless test renders

Nowadays many applications have real-time render previews, from V-Ray RT to modo's Preview, and there are also GPU-based solutions such as Octane Render or NVIDIA's Iray. These will all enable you to see the results of lighting changes quickly. At the higher end there is also KATANA, which can give real-time feedback while handling massive amounts of scene assets. Clarisse iFX also looks promising in its ability to handle large amounts of assets while rendering in almost real time. The process of lighting is really being shaken up by these innovative workflows that are speeding up what was once a very slow process. This is a welcome development, since lighting is one of the most pressured jobs in production due to its position at the end of the pipeline.

When using a preview renderer you can add, delete or modify lights and watch the preview update, giving you instant feedback on your changes. This is much faster than the older workflow of making changes and then having to wait for test renders to complete, and means you can concentrate on the work rather than constantly have to wait to see the results.

Another very powerful workflow is to render out all of your lights as separate passes and save them as 32-bit EXRs, which can then be combined together in post either in Photoshop, Nuke, After Effects or another compositing package. This will enable you to completely relight your image in post, with complete control over the intensity and colour of every light in your scene. Combine the passes into one document using the Add (Linear Dodge) mode and then change the exposure and

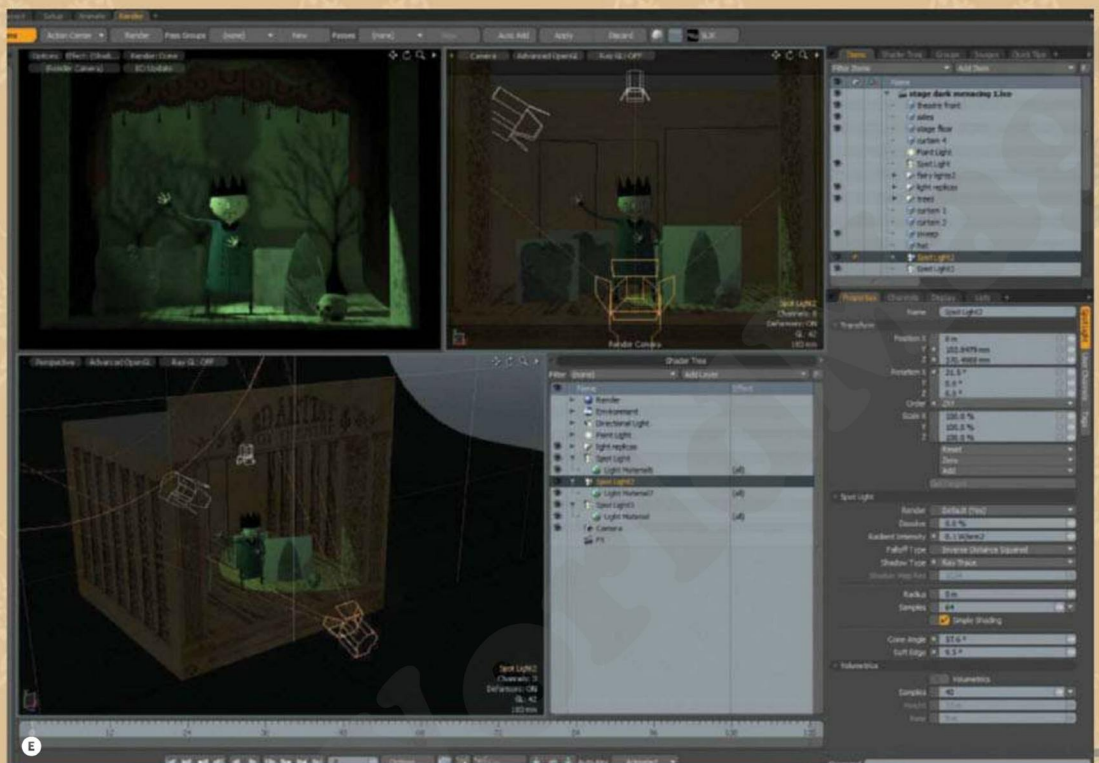


Hue/Saturation settings of your individual layers to change the brightness and colour of each light.

A Photoshop file has been included with this issue for you to experiment with this workflow. You can tweak all the lights that are rendered out to separate layers and see for yourself all of the different effects that can be achieved.

These faces have been altered from a single Photoshop file where every light has been separated on its own layer, allowing the colour and brightness of each to be adjusted at will

- A** A darker mood is created with less colourful lighting and careful use of contrast to pick out only part of the character's face. Leaving so much in shadow helps to heighten the overall atmosphere of the set
- B** Very strong backlighting creates high contrast and silhouettes - great for creating high-impact or very creepy scenes
- C** Here the aim was to highlight the character's face with some bright shafts of light. Interesting colours and shadows have also been added to the background
- D** Diffuse lighting creates a lighter mood without making strong shadows or contrast
- E** modo's Preview render gives real-time feedback on lighting changes, enabling a very fast workflow







### COMPOSITION AND STAGING

Use light and contrast to direct your viewer's eye to points in your images where you want to keep the focus

Our eyes are always drawn to the areas of highest contrast in a scene, so it's important to control its level in your scenes in order to direct where you want people to look. Always reserve the point of highest contrast for the focal point in your scene, and then create a hierarchy of contrast to direct your viewer's eye around the secondary points of interest. It's often possible to use a spotlight effect to direct the viewer's eye to your focal point by simply shining your brightest light on your main subject. If you need the light to make sense in the context of your scene then it's simply a case of positioning your main subject by a window or a light fixture. In many cases you can go even further and use devices such as Venetian blinds to cast focused rays on the eyes of your main character - a device that has been used in films widely, both in the past and present.

Another characteristic you can use to your advantage is that eyes are the most reflective surface on a face, since they are wet and glossy. In many cases careful consideration is given to specifically light a character's eyes so that they will have pleasing reflections. This in turn will create the contrast that is needed to draw the audience's eye towards them and establish a connection between audience and character.

Lighting should always be subservient to story; the single most important aspect of lighting is to tell your story. For this reason you should build your lighting scheme with the sole purpose of directing your viewer's eye to the parts of the scene that are important to your story. If there are parts of your scene that aren't important to the story being told, then they are not important for your lighting either.



The reflection on the character's glasses has been carefully designed to draw the viewer's eye to his face, the focal point of the image



Most of the textures in this scene are monochrome, with all of the colour provided by the lighting to create a warm and inviting mood

“ There are three very important variables in light that you can use to convey mood: light direction, quality and colour ”

### ARTIFICIAL LIGHT

Artificial light also comes in many different guises, but leaves a lot more scope for creativity since you are free to create anything you wish. A studio setup is the very definition of artificial lighting, where you are in complete control: every light is at your disposal for you to make it do exactly as you need.

Studio lighting is generally provided by softboxes to create soft diffused light that envelops the subject. In these situations the lighting is completely passive to the subject and the idea is to show it in the best possible way. However, there is still plenty of room for creativity and important areas should still be highlighted with additional lights. Of course it's possible to stray from the typical studio setup and create more interesting or unique lighting schemes, however there are some cases when simple diffuse light can best show off your subject. Sometimes the lighting should get out of the way and let the subject itself tell the story. Getting this balance right is an essential skill to learn.

If your story takes place in a typical domestic setup then you can use what is known as motivated lighting. This means you are able to create your lights in a way that appears to make sense within the setting, but still use them for creative purposes. For example, if your main character needs to be lit more prominently in your scene, you can place it near a light fixture. Using this simple method you can easily get the point of your story across without distracting your audience with incongruous lighting.

The context of your lighting arrangement is always important. On a film or stage set you have the combination of a completely artificial setting with the possibility of very creative lighting. Because your audience understands the paradigm of the stage set, this is one setting where you can really do anything you like without it ever being questioned. There are also other situations where this is possible: fantasy settings, science fiction or anything else that is removed from every day life will give you a licence for unusual and creative lighting schemes without jarring the audience.



The spotlight device is used here to highlight the main character so that he can easily be found in the composition. A blue fill light is used as a counterpoint to provide some interest on the other side of the frame





Different moods are easily created by lighting the stage with various coloured lights



## ESTABLISH MOODS

Use key light variables to create atmosphere for your story

By combining these three qualities in your lighting with a specific purpose you will be able to create many different kinds of moods. These are tools in your arsenal that are central to the storytelling potential in your images. Without effective use of lighting to convey the mood and direct your audience, your message will not get across. Your lighting can instantly tell your audience what they should be feeling, whether the scene is scary, warm, funny or dramatic. The same scene with different lighting can convey completely diverse emotions and evoke various reactions.

### · LIGHT DIRECTION

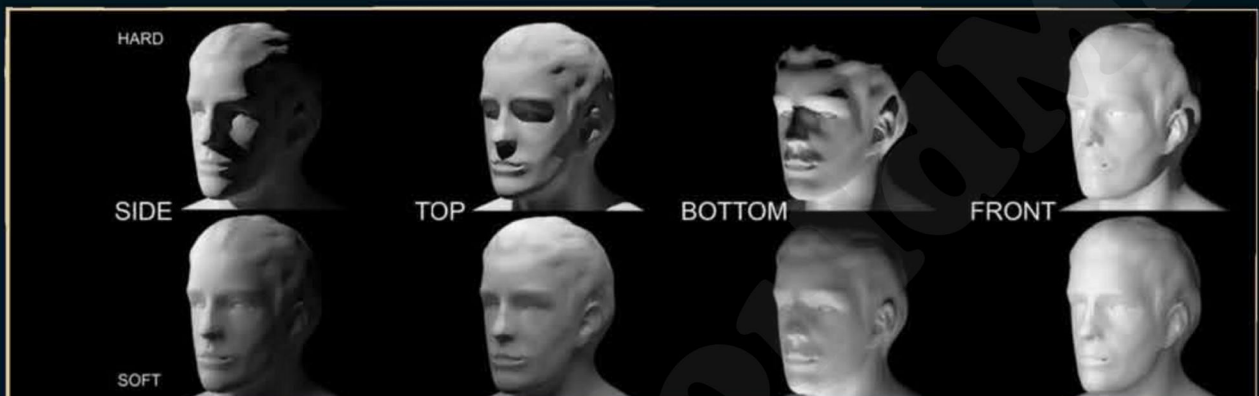
The direction of your main light in relation to your subject will have a big impact on how your subject is perceived and what characteristics are emphasised or played down. Side lighting will highlight surface textures, whereas front lighting will hide them. This is why men are often lit from the side to reveal the textures on their faces, whereas women tend to be lit from the front in order to do the opposite and hide any skin imperfections. Backlighting will silhouette your subject or create a rim of light outlining its form. Lighting from above can be quite menacing, and lighting from below is a well-known way of creating a spooky mood because it creates an unfamiliar reversal of the light and gives areas of shadow on a face.

### · LIGHT QUALITY

Light quality refers to the softness or hardness of the shadows cast by any given light, and this in turn is dictated by the size and placement of the light source. Small distant lights create hard-edged shadows and large nearby lights create soft shadows. The quality of your light source will play a big part in determining the mood of your scene, with harder lighting being much more dramatic and intense than soft lighting. Comedies are generally lit with soft, bright light sources that leave very few shadows, whereas thrillers might be lit with hard high-contrast lights that create bright points of interest amid large expanses of darkness.

### · LIGHT COLOUR

Colour plays an important part in determining the final mood of a scene, mainly through our symbolic associations with various colours and with how the palette is presented: whether it's dark or light, bright or dull, warm or cool. A scene lit with green light is likely to be unsettling, one with red may suggest violence, and warm afternoon light is likely to be inviting or even nostalgic.



This face has been lit from different directions with both hard and soft light. You can compare the different moods that the direction and the hardness of the light creates on each face





## LEARN TO OBSERVE LIGHT

Use a camera to capture and record the lighting scenarios that you encounter every day to understand how light behaves

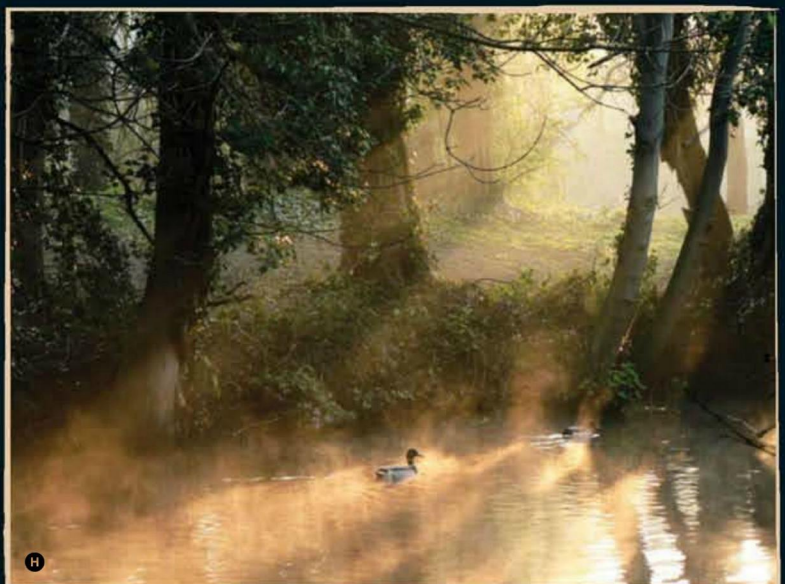
The quickest and most effective way to get a real understanding of light is to use a camera and take as many photographs of different lighting conditions as you can. The important thing is to always photograph the light rather than the subject, to the point where it becomes second nature and you always consider the lighting as your main priority.

By doing this simple exercise you will develop your powers of observation and notice many things that have always been around you but which you have ignored: how light quality and direction affect the world around you, how different times of day can have very different moods, and how to best capture a subject under any given light.

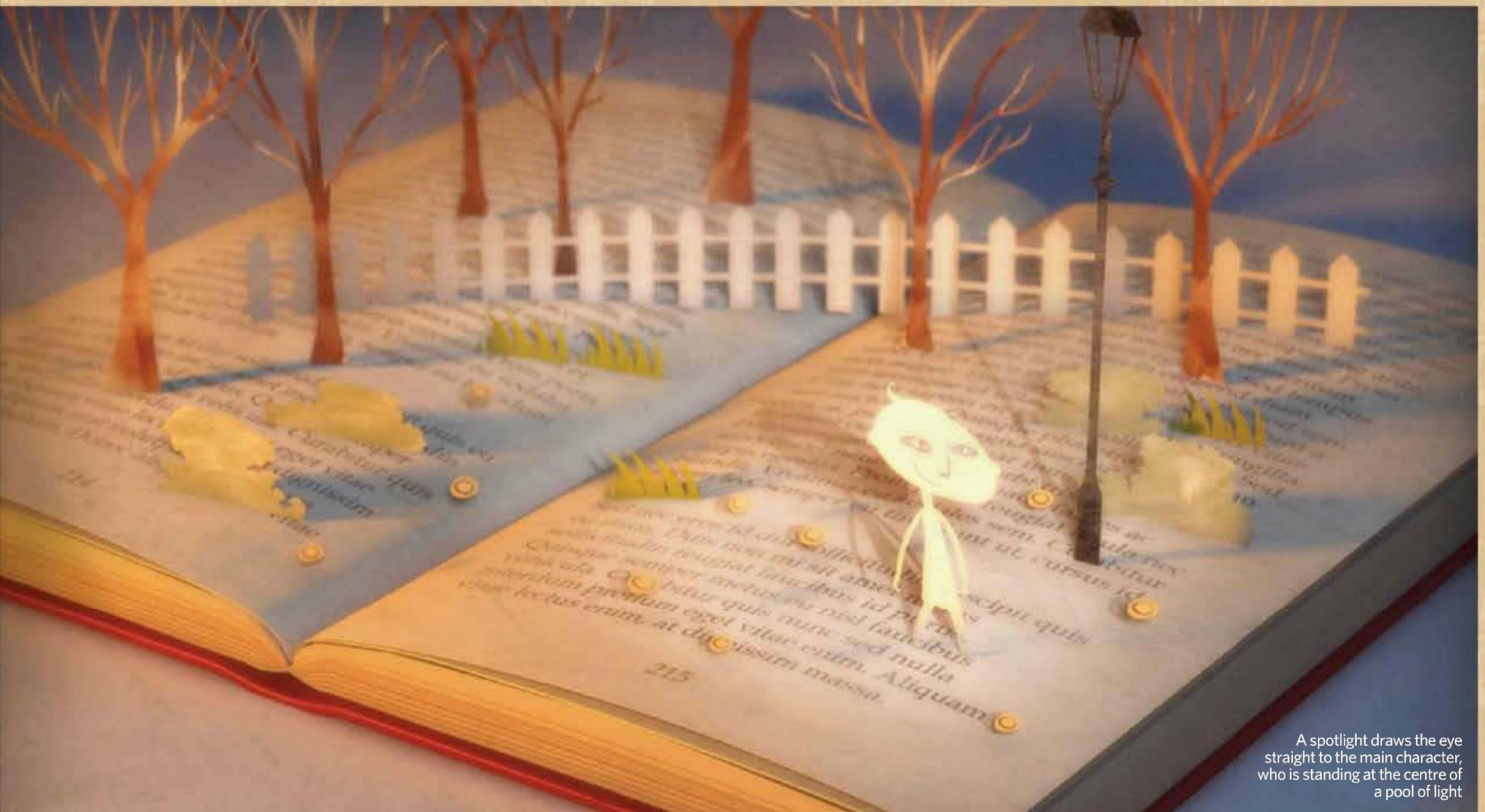
You don't need any expensive equipment to do this, a phone with a simple camera will suffice, but for obvious reasons you should always avoid using flash or filters since you want to capture the available light in a scene. The main purpose of the exercise is to observe and appreciate, so the final quality of the photos is not important. The great benefit of using a camera phone is that you always have it with you, so you can record all of the interesting phenomena that you come across.

Learning from photography is a powerful tool; it will very quickly teach you a lot of useful things you had never noticed, and most importantly it will open your eyes to the world around you in new ways. All you need to do is start looking around at all the different lighting you encounter, from the mundane to the spectacular, and record it all. You can compare the gentle diffused light of overcast days with the warm, dramatic light of sunny evenings and analyse what qualities each of them has to create varying moods.

“ You can use dramatic effects such as backlighting or volumetric lights, or more subtle diffuse lighting with soft shadows – it all depends on the mood and story you are trying to convey ”







A spotlight draws the eye straight to the main character, who is standing at the centre of a pool of light

## IN CLOSING...

Since the Renaissance, artists have manipulated light in order to use it for symbolic and compositional purposes. Lighting should never be accidental. You can use lighting for many different storytelling purposes: to create a mood, to give a sense of a setting, or even to establish a historical period by the kind of lighting you use. You can evoke a time of day, a genre of story, a style, or simply use it to control your compositions. You have all of the qualities of light such as brightness, contrast, diffusion, colour and direction at your disposal in order to tell your story. You can use dramatic effects such as backlighting or volumetric lights, or more subtle diffuse lighting with soft shadows – it all depends on the mood and story you want to convey.

Many artists give little thought to lighting, seeing it as a purely functional task, and use the same setups in many of their scenes. Either that or they tend to stick to formulae, such as three-point lighting, which emerged in the early days of CG. This attitude has a huge cost in terms of emotional impact. Lighting is the most important storytelling device that 3D artists have at their disposal. It's wasteful to spend energy modelling and texturing only to fall short on communicating the emotions you want to convey with correct lighting.

The best thing you can do is to experiment with different ideas when you set up your scenes, try a few things in every case and compare them to see which makes your point come across more effectively. Also, make sure to learn from nature: take photographs, draw sketches and observe. You should also try to notice how films, TV shows and animations are lit when you watch them; you can learn a lot by simply starting to notice how others go about lighting their scenes.

“It's wasteful to spend energy modelling and texturing... to fall short on communicating the emotions you want to convey with correct lighting”



I

**F** Dappled light picks out some leaves, creating an effective focal point for the photograph

**G** Interesting photos can be captured in the most mundane circumstances – in this case walking the dog early in the morning sun

**H** The morning sunshine catches some thin mist rising over a river



J

**I** Deliberate use of the north light is made to reference the work of Johannes Vermeer. You can see why artists find it so appealing: soft and low contrast with a solid direction and flow

**J** Green light is used to create a creepy mood that suits the unusual characters



# I made this...

## Incredible 3D artists take us behind their artwork

### Artist info



**Hugo Leygnac**

Website [www.leygo.blogspot.fr](http://www.leygo.blogspot.fr)

**Country** France

**Software used** 3ds Max, V-Ray, ZBrush, After Effects, Photoshop  
**Bio** Hugo is from Tulle, France and is currently a student in his fourth year at Supinfocom Arles

### Software used in this piece

3ds Max

V-Ray

ZBrush

After Effects

Photoshop

“Modelling was done with 3ds Max.... Apart from the first pass of depth of field and the bokeh lights (which were done during rendering), all the effects were done with After Effects, including volume lights, particles, diffusion and atmospheric effects”

## Baboosh 2012

The main sources of inspiration to make this image were the trips I went on in North Africa and the Middle East regions in my childhood and in recent years. It requires no large effort to retain the great atmosphere of such places in the memory. I wanted to reproduce my impressions of these environments, not necessarily in a realistic way, but mostly with regards to the sensations of the light and colours. The most important point for me was to focus on the lighting and compositing.



GET  
EXCITED ABOUT  
3D & VFX!  
Your opportunity to  
meet the industry &  
network with  
the pros

# BLUEGFX EXPO 22 NOVEMBER

Discover the latest 3D technologies, network with 3D and VFX pros and mingle with like-minded creatives at the bluegfx expo

## Get ahead in 3D & VFX at the bluegfx expo!

Be sure to get yourself registered and ready for this year's tech-packed event

- The expo will showcase the latest technologies and product announcements from SIGGRAPH and IBC from the likes of Autodesk, Adobe, NVIDIA, Chaos Group, Wacom, Hitachi Data Systems, Avere Systems and many more
  - With a large exhibition area and lots of guest speakers it's the perfect place to ask the experts, see the technology and network with others
  - The third annual bluegfx expo will be held on 22 November at the London Film Museum.
- Register now at [www.bluegfxexpo.co.uk](http://www.bluegfxexpo.co.uk)!

This 22 November sees the third bluegfx expo, which will be held at the London Film Museum in South Bank. With panel discussions, vendor displays and interactive sessions galore, the expo offers visitors the chance to immerse themselves in the latest tech while talking to fellow 3D and VFX professionals.

With confirmed vendors including Autodesk, Hitachi Data Systems, Wacom, Pixologic, Chaos Group, Avere Systems, Adobe and NVIDIA, the expo provides opportunity for everyone in the media and entertainment industries to gather and learn more about the latest developments in 3D technology. It also enables visitors to hear top industry speakers, talk to vendors face-to-face, mingle with peers and take part in discussions about the way the industry is changing. There will also be prize draws giving visitors the chance to get their hands on some of the latest kit!

To find out more about the bluegfx expo and to register for the event on 22 November, head to [www.bluegfxexpo.co.uk](http://www.bluegfxexpo.co.uk). To find out more about the location of the expo, you can visit [www.londonfilmmuseum.com/south-bank](http://www.londonfilmmuseum.com/south-bank).

## WHAT CAN VISITORS EXPECT?

Dave Goodbourn tells us what he gained from last year's expo to draw him back this year...

Dave Goodbourn, IT manager at uFX ([www.u-fx.co.uk](http://www.u-fx.co.uk)) attended the bluegfx expo at Ravensbourne in November last year. For him, the highlights included meeting vendors in the expo area as well as the panel discussion that saw representatives from MPC, Cinesite and Prime Focus debate the question: Stereoscopy – hype or reality for my business?

"From a facilities perspective it's always interesting to see what others are doing and how, so [hearing from] industry speakers is always interesting, especially for junior/mid-level people," says Dave. He thinks the experience was worthwhile: "Having the chance to talk to some of the vendors in person is really helpful and [often] puts a face to a name." The range of topics and sessions covered was part of the appeal for him too of course, and he adds that "the day was well put together and organised, and had a wide variety of sessions depending on your interests".

Dave will be attending this year's expo too, and is particularly interested in "networking with industry vendors [and] picking their brains about new technology and techniques". He adds that the expo is "a really good platform for new industry people to gain some valuable insider knowledge".



## SPEAKING FROM EXPERIENCE

Steve MacPherson explains why he enjoyed last year's expo and what makes it so special...

As Framestore's CTO, Steve MacPherson is ideally placed to see exactly how the industry and its technology is changing. He was interested in speaking at last year's bluegfx expo because Framestore ([www.framestore-cfc.com](http://www.framestore-cfc.com)) "had just gone through a period of big transition... our approach to making films was changing. The technology

was similar (just new generations) but we were getting much more involved with visual development," he explains.

Steve enjoyed the experience enormously, despite not considering himself a natural public speaker. He commented that the well-organised expo was "full of lively conversation", also adding that others felt the same way too. What he found particularly great was that the atmosphere felt so inclusive, he says: "I didn't know which ones were speakers, which ones were students, which ones were artists, which ones were vendors..." Find out who'll be speaking at this year's bluegfx expo by heading to [www.bluegfxexpo.co.uk](http://www.bluegfxexpo.co.uk).



A You can mingle with other creatives at this year's bluegfx expo, to be held on 22 November

B See what the future might hold at the upcoming bluegfx expo



Pushing animation forwards

# PUSHING >> ANIMATION FORWARDS

Words by Chris McMahon

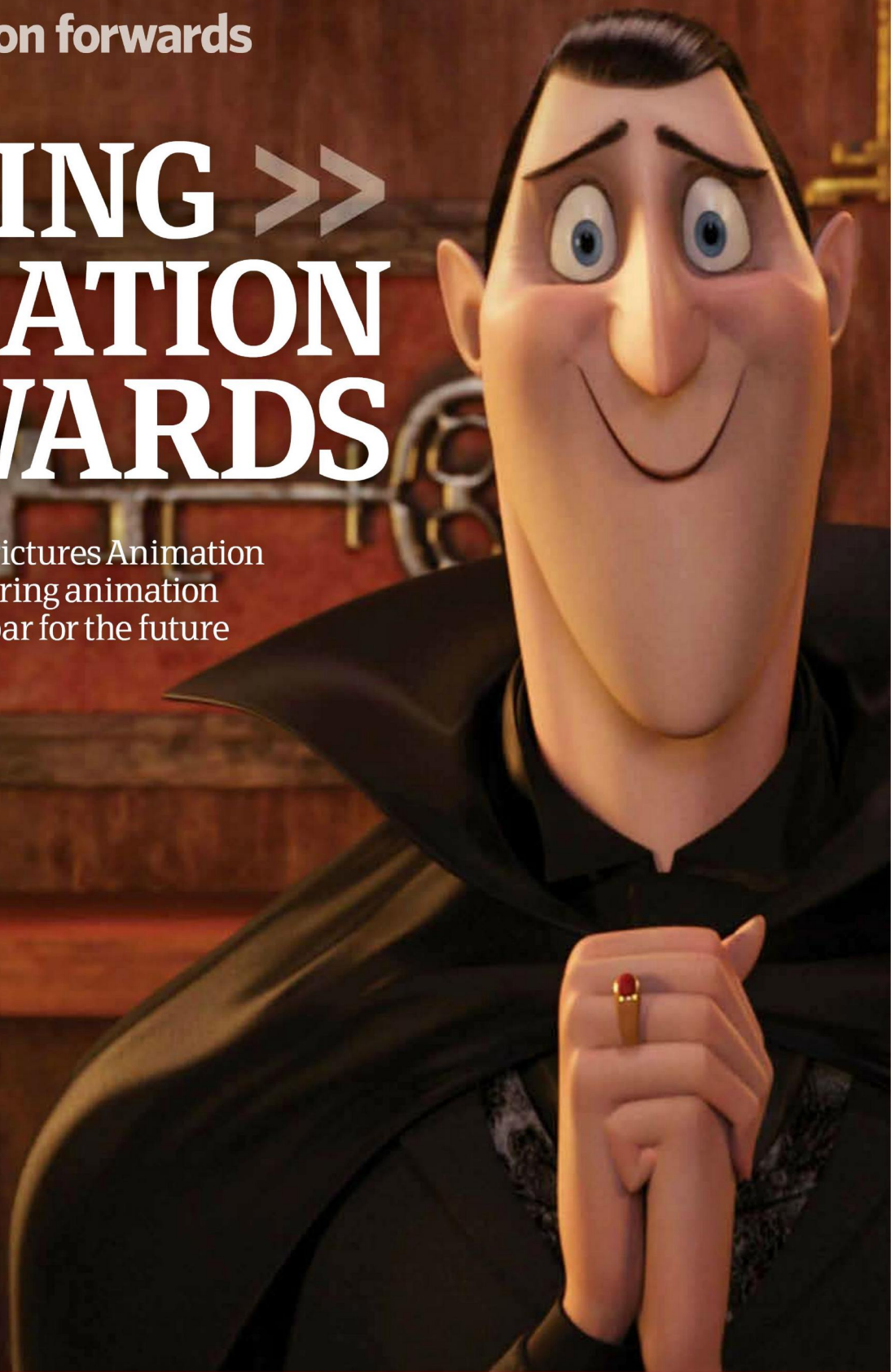
**3D Artist** talks to Sony Pictures Animation about a decade of mastering animation challenges to raise the bar for the future

**B**reaking into a multi-billion-dollar industry dominated by Pixar and DreamWorks Animation was never going to be an easy task. However, over the past decade Sony Pictures Animation (SPA) has built up a short but nevertheless unique collection of work that boasts not only the heights of artistic vision, but also some of the most impressive technical fidelity in the field.

"We've had a mission statement since the beginning," says long-time SPA producer Michelle Murdocca. "When we started the company, one of the things that we really didn't want to do was have a house style. We didn't want SPA to make movies that were all thematically similar, or all had the same look or the same style. I think we've definitely stayed true to that."

From surfing penguins to pancakes falling from the sky, Sony Pictures Animation has delivered nothing less than imagination-fuelled, family-focused entertainment, each production more vibrant, colourful and hilarious than the last.

**3D Artist** talks to the staff at Sony Pictures Animation to discover the key technical and creative hurdles in the last decade, and how they were overcome....



SONY PICTURES  
**animation**

An animated company

**Studio** Sony Pictures Animation

**Location** USA

**Website** [www.sonypicturesanimation.com](http://www.sonypicturesanimation.com)

**1992**

Sony Pictures Imageworks was founded as a VFX house for the movie industry

**2002**

Sony Pictures Imageworks releases its first animated short, 'The ChubbChudds!' as a pipeline test to explore its strengths and weaknesses in feature-quality CG animation

**2002**

Sony Pictures Animation was established a decade after Sony Pictures Imageworks to develop characters, stories and movies for fully CG-animated projects



# Pushing animation forwards

“ [The directors] were having fun every step of the way. That was contagious and a great motivator for us in animation ”

William Haller, SPA lead animator



## 2006 OPEN SEASON

**Sony Pictures Animation's first feature film opened at number one at the box office**

Sony Pictures Animation's very first feature film told the story of Boog, a domesticated Grizzly bear who found himself stranded in the woods three days before the hunting season, reliant on the fast-talking mule, Elliot, to survive.

"Being as it was SPA's debut feature, I think that added some pressure on everyone to do a really good job, because we wanted it to succeed in all departments," remembers veteran SPA lead animator William Haller. "One of the challenges I really enjoyed on the show was the contrast of character between Boog and Elliot. It was really fun to animate two characters that are so different in style and design and bring them together."

One of the big issues to overcome, for example, was the fat around Boog's body, particularly around his belly and under his arms. "There were shapers that the character riggers created for this," explains Haller. "It was a complex system of controls that wrapped around the body and allowed the animator complete control over any area. So if you needed Boog's underarm fat to wiggle a bit when he lifts his arms, you would lift his arms with the main animation controls and then animate the fat with secondary controls to produce the wiggle that supported the arm movements. It was a complex process that required concentration when animating, but looked really convincing when done well."

However, the most enjoyable part of the show for Haller was working with the three directors: Jill Culton, Roger Allers and Tony Staachi. "You could tell they were having fun every step of the way. That was contagious and a great motivator for us in animation. You really wanted to do a good job for them."

## 2007 SURF'S UP

**The second feature from SPA took the technical side of visual effects to a totally bodacious level...**

A parody of surfing documentaries such as *The Endless Summer* and *Riding Giants*, *Surf's Up* told the story of a teenage rockhopper penguin with big dreams of becoming a professional surfer. Birds engaging in extreme sports aside, what made this movie really stand out was its hand-held 'mockumentary' style, which required an advanced digital camera interface to be developed properly.

Built by SPI and dubbed the 'HandyCam', this new live-action camera system could be used to shoot an animated scene, with the operator receiving instant feedback of the performance in the form of a 3D smooth-shaded version of the virtual world, fed back into the camera's eyepiece.

It was the waves that proved the real challenge, however, with over 20 minutes of surfing footage required. SPA approached the water and its effects as a character in and of itself, rather than a procedural effect. This required close co-ordination between the Animation and Effects departments.

"We started with one of the systems SPI had used on *Castaway*, where this one big wave took out Tom Hanks," says SPA visual effects supervisor Dan Kramer. "We worked out this system of taking a basic curve in the shape of a wave, which goes through a blendshape. We would animate just that one cross-section to create the profile of the wave through its lifecycle, from building up to crashing to flattening back out again. We would then basically just copy a bunch of these curve profiles in a line and then skin that onto a surface, adjusting the blend parameter on every

single one of those curves to affect where the wave was breaking at any one point."

What's really interesting is that the waves of *Surf's Up* were not simulated as you might expect, but instead constructed using a procedurally-generated animation rig designed in a collaboration between both the Effects and Animation departments. "Eric Miller, then lead technical director on the wave system, came up with the idea of putting these rotational rings around the waves - imagine a cylinder going lengthwise along the wave, with rings within it, tied to the blendshapes below. This gave the animator a simple control of just rotating that ring forward, so you would progress the wave forward in time. We went to the level where one ring could control one cross-section of the wave. The animators really had a lot of control over that."

As the rig was built in Maya, this enabled the wave to flow through the animation pipeline like any other character, using the same tools and methods.

Cody, Zeke and Chicken Joe might all stick out in *Surf's Up*, but in many ways the real stars were the rolling waves. "[It] was a challenge to figure out that puzzle; having what is traditionally thought of as an effects animation and to have actual animators control the systems directly," Kramer says in closing.



## 2007

SPA releases a short sequel 'The ChubbChubbies Save Xmas', and animate the *Open Season* DVD extra 'Boog and Elliot's Midnight Bun Run'



## 2008

*Surf's Up* earned its first Academy Award nomination for Best Animated Feature film





# Pushing animation forwards



“The challenge with *Cloudy* was destruction. We needed to come up with a whole new rigid-body-dynamics pipeline”

Dan Kramer, SPA visual effects supervisor

## 2009 CLOUDY WITH A CHANCE OF MEATBALLS

**SPA served up the full course with its most technically-ambitious and creatively-unique project to date...**

Sony Pictures Animation was set up with the aim of never repeating itself, and *Cloudy with a Chance of Meatballs* set that philosophy in stone. So far audiences had seen the buddy-comedy-with-animals *Open Season*, the penguins-meet-surfing of *Surf's Up*, and were now getting a film about foodstuffs raining from the sky.

“For our most complex project at SPA, I’m torn between *Surf’s Up* and *Cloudy*,” says Kramer. “The challenge with *Cloudy* was destruction. We needed to come up with a whole new rigid-body-dynamics pipeline for all the falling food and the destruction that incurred. Houdini didn’t have rigid-body dynamics at the time, so we brought in Open Dynamics Engine to do the work. We basically came up with a system for shattering objects into simple holes, for attaching geometry to these holes and doing ODE simulations for everything. We had to devise a whole destruction pipeline for that, which was pretty new for the facility.”

The effects are stunning, with giant pancakes flattening schools and bananas tearing through houses. It wasn’t the only impressive innovation created by the studio for the film, however. “For the animation style we referenced the old UPA films,” says SPA animation supervisor James Crossley. “We were going for a style that was much more limited to what we were used to doing. [There was] a very graphic look with the characters – when we were rigging the faces they needed to be posed very broadly without concern for the volumes. Often you rig a character so when the mouth corner goes up you want the cheek to absorb that volume and fatten up. We had to disregard this type of natural, realistic rigging and treat the facials in a very flat and graphic way.”

“It was great, but [also] a challenge since, I was so used to doing really fleshed-out animation. For this film we were making bold choices and keeping the animation limited.”

### 2009

Characters fell head over heels in love as *Open Season 2* was released on DVD

### 2010

Audiences got their third fill as Boog’s friends rallied around him in *Open Season 3* in cinemas





“Figuring out what shade of blue the Smurfs should be was a huge deal. It really never ended!”

Dan Kramer, SPA visual effects supervisor

## 2011 THE SMURFS



**SPA tackled *The Smurfs* without getting a case of the blues...**

*Cloudy with a Chance of Meatballs* may have been based on the children's book of the same name, but that wasn't remembered half as well as *The Smurfs*, an intellectual property with a dedicated fanbase. As such, faithfulness to the source material was an absolute must.

"Figuring out what shade of blue the Smurfs should be was a huge deal. It really never ended!" remembers Kramer. "The producer wanted to be really faithful to the cartoon. He was given a set of Pantone colours to work out what the Smurf blue should be. He gave us one and said, 'This

is Smurf blue', but I said, 'Okay, but they can't be the same blue in every shot because what if they're in a room that's got red lights? They're going to turn purple! If you want them to look real then they can't always be that blue.'

"So it took a bit of work to get over that hump," he continues. "We even had to figure out things like what colour Smurf blood is! We were using a lot of subsurface scattering. It makes things look real and, especially with small creatures, informs the eyes - it tells you that something is small and thin if light is penetrating through it. So, of course, we had to figure out what colour blood they have! We tried blue, green, yellow... but it turns out from our tests that Smurfs have red blood because nothing else looked very good [laughs]!"

The team at SPA had previous experience working with CG characters integrated into a 3D scene on SPI's *Stuart*

*Little and G-Force*, but this time they chose to experiment further with a new HDRI lighting system known as the SpheroCam HDR. The system is specially designed to measure real-world luminosity values with a single 360-degree scan operation. This data can then be optimised by teams like SPA to illuminate their Smurf characters.

"We came up with a pipeline on *The Smurfs* where for every new lighting setup we would do this stereo scan," Kramer explains. "That way a lighter could faithfully replicate the environment. They could take the actual HDRI data, and the amount of light bouncing off a wall, and they could map that direct HDRI data onto the scene. Our Smurfs would be directly lit off of that. It was a really slick system, and it's the way that everything's been lit since. It's going to be used throughout every project that we work on until we find something better."

## 2011 SPA COLLABORATES WITH AARDMAN ANIMATIONS

**SPA teams up with the creators of *Wallace & Gromit*...**

At the end of 2011, SPA entered into a collaboration with Aardman Animations, aiding the prestigious UK studio with the creation of its first computer-animated feature, *Arthur Christmas* - a tale about

Santa's kindhearted, albeit slightly gawky, son, and his own Christmas mission.

Less than a year on and the two companies released a second collaborative effort with stop-motion/CG crossover *The Pirates! In an Adventure with Scientists*, the first stop-motion feature released in 3D using CG to complement its environments.





# Pushing animation forwards

+

“I started on *Hotel Transylvania* about six years ago, and I’ve been on it ever since!”

Michelle Murdocca, producer

## >> 2012 HOTEL TRANSYLVANIA

A scary development period of six years and a terrifying turnaround of directors couldn’t keep this horror show from being frightfully funny

**D**ue for release on 12 October, *Hotel Transylvania* is confidently making its way into cinemas across the UK just in time for Halloween. However, despite its sleek and stylish look, the journey from imagination to the silver screen hasn’t been so smooth.

“I started on *Hotel Transylvania* about six years ago, and I’ve been on it ever since!” says producer Michelle Murdocca of the film’s unexpectedly-extended production phase. “It was a long period of time for any movie to be in development. We went through a variety of directors and studio executives.”

Initially Anthony Stacchi and David Feiss were to direct the film, then Jill Culton, then Chris Jenkins, and then Todd Wilderman. It was in 2011 that 2D animation maven Genndy Tartakovsky – responsible for the likes of *Dexter’s Laboratory*, *The Powerpuff Girls* and *Samurai Jack* – came on board as the sixth and

final director, in his first role on a CG feature film.

“When Genndy came on, he had to take something that wasn’t his and make it his own,” remembers Kramer. “The production had gone through several different stories and different teams and directors – they’d started it up, started building assets, it would get shut down, they would start again thinking they’d figured something out, then [it would] get shut down again. It went on like that for a while. At some point though, in the incarnation before ours, they had built a lot of great designs. They had most of the castle, they had Dracula, Mavis, Mummy, Frankenstein [and] they’d built most of the major characters before Genndy came on. When he did come on, he was basically handed all of this stuff and needed to reconcile it and wrap it all up, and he had a year to do it in. It was a really big challenge.”

### 2012

*Hotel Transylvania* hits the cinemas...

*Hotel Transylvania* takes place in the eponymous bed and breakfast for beasts, where the Adam Sandler-voiced Dracula is feeling over-protective of his adventurous daughter Mavis. The entrance of curious human Jonathan to this world turns everything up on its head. “It took us a long

time to get to the point where we could service the three stories of Dracula, Mavis and Jonathan in a way that felt like they really complemented one another,” says Murdocca. “Now, if you’re in the audience, you’re going to relate to one of these characters and really latch onto the film”





## APPLYING THE TARTAKOVSKY STYLE

Tartakovsky was adamant that if he were to be director, then the film would follow the same 2D-exaggerated, animation sensibilities that had defined his career.

"I was working on the show about a year before Genndy came on board, and at the time we were referencing the old Disney hand-drawn films like *Robin Hood* and *The Sword in the Stone*, with their nice controlled animation and subtle performances," animation supervisor James Crossley recalls. "When Genndy came on he started talking about Warner Brothers and the old Tex Avery cartoons. That was great, but then we had to figure out how we were going to get the extremes Genndy wanted from the rigs that we'd already built."

*Hotel Transylvania's* action scenes are far stretchier than most of SPA's previous feature films. Only *Open Season* comes even close to matching the film's highly exaggerated cartoon style. "We had to push and pull on models much more than we've ever done in the past," Murdocca recalls. "For example, there are moments when Dracula is really angry and his head gets about five times [its normal size] and shrinks down instantly. Initially, when

Genndy said he wanted to do that kind of stuff I saw a lot of raised eyebrows from the modelling and rigging department!" Murdocca adds.

The animation team nevertheless found a way to pull it off, finding additional deformers that they could add to characters while working on each shot. "Lattices, clusters, sculpt deformers, blendshapes and wrinkle-free deformers allow you to smooth out the creases and bumps that you get when you really push the rigs," says Crossley. "The animators had to become very skilled with these deformers to get the poses that Genndy was looking for. It made the film very unique."

"While they still look like human characters, Genndy really takes advantage of using the characters' shapes and silhouettes to enhance the performance," says Murdocca. "That style would not be there without Genndy. That was definitely his influence."

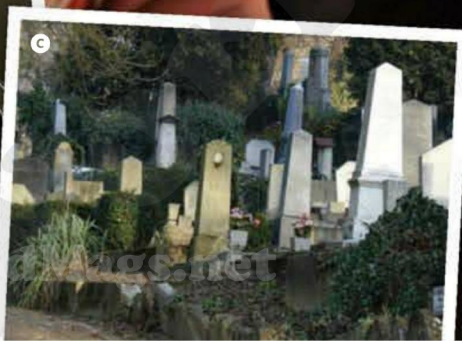
## FRIGHTENING PHYSICS

There wasn't just one aspect of *Hotel Transylvania* where Tartakovsky made his mark, though. "There were a few things Genndy wanted to do that initially seemed

**A** Tartakovsky would often sit in dailies with a Wacom tablet, watch the animation, then draw 2D poses over the action for the animators to try to match up

**B** The team at SPA attempted to draw the performances of the actors through the animation. "Steve Buscemi might be a werewolf, but he's Steve Buscemi through and through," producer Murdocca explains

**C** The team at SPA took a trip to Romania to capture the "feeling and essence" of that part of the world. "We wanted to have that old-world feel in the movie," says Murdocca





# Pushing animation forwards

+



The renderer Arnold was used extensively on *Hotel Transylvania* – a tool that enables the production to feel real and physical despite its cartoon qualities. “It’s a seamless integration,” explains Murdocca

“Genndy likes this snappy 2D style, where characters move at 200mph and then they suddenly stop”

**Dan Kramer**, SPA  
visual effects supervisor



## OVERCOMING ADVERSITY

*Hotel Transylvania* wasn't the smoothest of productions. “The biggest challenge was that we had to move so quickly,” explains Kramer. “We would usually have much more of a plan going into layout, but in the production schedule, however, we would often be going into layout with no environment and maybe just a couple of characters.

“We relied on layout to mock-up a lot of the environments on the fly,” he continues. “We weren’t building our world ahead of time like we would normally do. We would get into lighting and... still be trying to get that environment built out. We would be rethinking parts of the castle, or coming up with new environments. It was a little hairy because it felt like building the bridge as we were crossing the canyon. We had to fly by the seat of our pants a lot more than normally,” he reveals.

## DESIGNING DRACULA

Production designer Marcelo Vignali discusses creating the world of Dracula

“The lobby for the hotel is so large it was difficult for me to comprehend the scale,” he says. “It wasn’t until I started thinking about the environment like a small city that I was able to grasp what needed to be done. Each of the doorways and arches are like city streets; I had to know where each of them went. I believe that my experience in working for many years at Walt Disney Imagineering doing theme park design came in handy. I was able to conceptualise the lobby and create an architectural plan view. It really did prepare me for the scope of the [whole] project.”

challenging, but our team found a way to handle [them],” says Murdocca. “One of [these] things we coined ‘Genndy Blur.’”

During production Tartakovsky took issue with the way motion blur was achieved, and asked for a way to make it appear more convincing. “Due to all the snappy animation and things twisting and turning a lot, we were using a lot of motion blur,” remembers Kramer. “Normally we figure out where a character is at frame one and frame two, and you blur a line between those two points. The blur is normally achieved with a linear line if we do it cheaply, which is how we normally do it because you can’t tell. However, if you’re moving in an arcing motion between those two frames, the path that arm took, for example, isn’t necessarily linear. The classic example is a wheel spinning. If you have a camera looking at a wheel that’s spinning fast and you paint one red dot on it, at frame one it’s at the top of the wheel and at frame two it’s at the bottom. Using [our] linear blur you just get a vertical streak from top to bottom. If you take into account the sub frames between then you see the blur curves around the edge of the wheel. That’s what we call ‘multi-segment motion blur, where you’re looking at four, six or ten segments of points in time between the two

frames, and calculate that to get a more accurate streak.”

This multi-segment motion blur – or Genndy Blur – approach enabled smoother, more finely animated character gesticulations, and also helped better present the flapping, waving movements of Dracula’s cloak – another feature of *Hotel Transylvania* that posed problems to the film’s creators.

“Because of the animation style on this show, cloth was pretty difficult,” says Kramer. “Genndy likes this snappy 2D style, where characters move at 200mph and then they suddenly stop. Other times they’re twisting their top half one way and their bottom half the other. As far as geometry goes it’s very fluid, very non-anatomical stuff.

“However, our cloth systems are built to mimic reality, so that was a challenge,” he continues. “For example, if Dracula did a really fast movement and then suddenly stopped it for comedic effect and we let our simulations go, the cape would just be in the background fluttering around. Instead we’d have to quickly blend back to a more static cape shape. There was a lot of moulding [done to] the shapes of the cape to whatever animation was required. We were basically fighting physics with this movie.”

## ALL'S WELL THAT ENDS WELL

Luckily, it’s all come together on time, and the finished product of *Hotel Transylvania* is looking fantastic. It sports a wry amalgamation of all the different features that have made up SPA’s past – the stretchy animations of *Open Season*; the physics of *Surf’s Up*; the finely-tuned physical comedy of *Cloudy with a Chance of Meatballs*; and the subtle realism of *The Smurfs* grounding it all.

“It was a challenge, but over the years there’s always been enthusiasm to work on this movie,” says Murdocca. “It’s really fun, it’s really cool, and who doesn’t want to work on a movie with Frankenstein and Dracula and all the other classic monsters? And once Genndy joined, what animator wouldn’t want to work with him?”

“We’ve used every spare moment that we have to really test our story, and really make it something that feels like there’s an emotional and comedic throughline to it,” Murdocca concludes. “As the movie morphed into what it finally became, so too did the backgrounds and the character designs, and I think what we’ve ended up with is a really great, cohesive world that everyone can relate to.”



Boundless creativity beckons you.



Image by synthymonkey.  
Miku3 from Content Paradise. Circus props by  
Sixus 1 and Luke A, TerraDome by Runtime DNA.



Breathe life into your story with Poser.® Use Poser to pull in assets from any location, including online and local libraries, or from your favorite 3D tools. Take complete control of lighting, clothing and props to build your scenes, populate with characters and tell your story. Discover your path to personal creativity at [poser.smithmicro.com](http://poser.smithmicro.com)



# Kurt Papstein

“Being a 3D artist is really being a problem-solver... It's like, 'Here is a bucket of parts, and here is the wall you have to scale. Take these parts and make a robot to carry you up to the top!'”



**A** This is *The Pilot*, a design that houses a small alien inside a protective suit. The suit was created with DynaMesh in ZBrush and later opened with Morph Targets to show the alien

**B** *She Alien*, 2012. A mix of subtle hard-surface work and organic sculpting completed in DynaMesh







“If I could go back in time and tell my younger self where I am going to be in five years, I wouldn't have believed it”

## KURT PAPSTEIN: AN ARTIST'S EVOLUTION

Lynette Clee talks to self-taught ZBrush artist Kurt Papstein to discover how the creative possibilities of digital sculpting have rocked his world

**A**s artists, we're naturally motivated to seek out the key ingredients that will help us bring ideas to reality in the most fluid, creative ways possible – no matter what the medium. For Kurt Papstein, the magic struck when he discovered a Wacom tablet for the first time. When ZBrush hit his radar, things truly started to snowball.

An avid fan of comic books and videogame characters at school, Kurt was often found sketching goofy drawings of dinosaurs and cartoons. The very idea of making a living from his passion back then was inconceivable; it was too unimaginable, too impractical and too expensive. But following a call from his loving parents to art school to set up a phone interview, Kurt was pushed into gear and onto a road that would lead him on quite a journey.

Staying on the right path was helped immensely by keeping active in online artist communities. Before learning about sites like ConceptArt.org, deviantART and CGTalk, Kurt was a regular visitor to

GFXartist.com (sadly now closed), marketing himself as KPToons, a name that had stuck with him since high school when he was replicating western animation styles and developing his own characters for a web comic. After becoming well-known in the community as 'the dinosaur guy', he felt an urge to move on. "I have felt for a long time that KPToons just comes from a different part of my life that I don't associate with anymore," Kurt says. "It's a lot like shedding a baby name someone gave you, but that someone was yourself, a long time ago."

Rebranding himself under the pseudonym Ikameka, we're introduced to Kurt Papstein 2012. The more mature artist that has "somewhere he wants to be and knows how he wants to get there". While to many these may just be silly internet names, for Kurt it has given him a chance to start afresh, to step into the future and show it exactly what he's capable of. We couldn't help but take the opportunity to find out first-hand what inspires, motivates and pushes Kurt to be the best at his game.



### KURT PAPSTEIN

**Job** Character/concept artist

**Location** California, USA

**Website**  
<http://ikameka.blogspot.com>

**Expertise** Kurt specialises in the design and production of characters and creatures

**Preferred tools** ZBrush and Photoshop

**Clients/employers** Turtle Rock Studios, InXile Entertainment, Laguna College of Art and Design (LCAD)

**Key projects** *Hunted: The Demon's Forge*, plus multiple unannounced titles

### TIMELINE

**2007** Employed by InXile Entertainment as a creature/character artist

**2011** Hired at Turtle Rock Studios for character/concept art. It was at this time that Kurt also took a job at LCAD to teach ZBrush to students

**2011** *Hunted: The Demon's Forge* shipped from InXile Entertainment

**2011** Invited to beta test ZBrush 4R4 for Pixologic

**2012** Presented at the Pixologic User Group Meeting and Gnomon School in Los Angeles, California

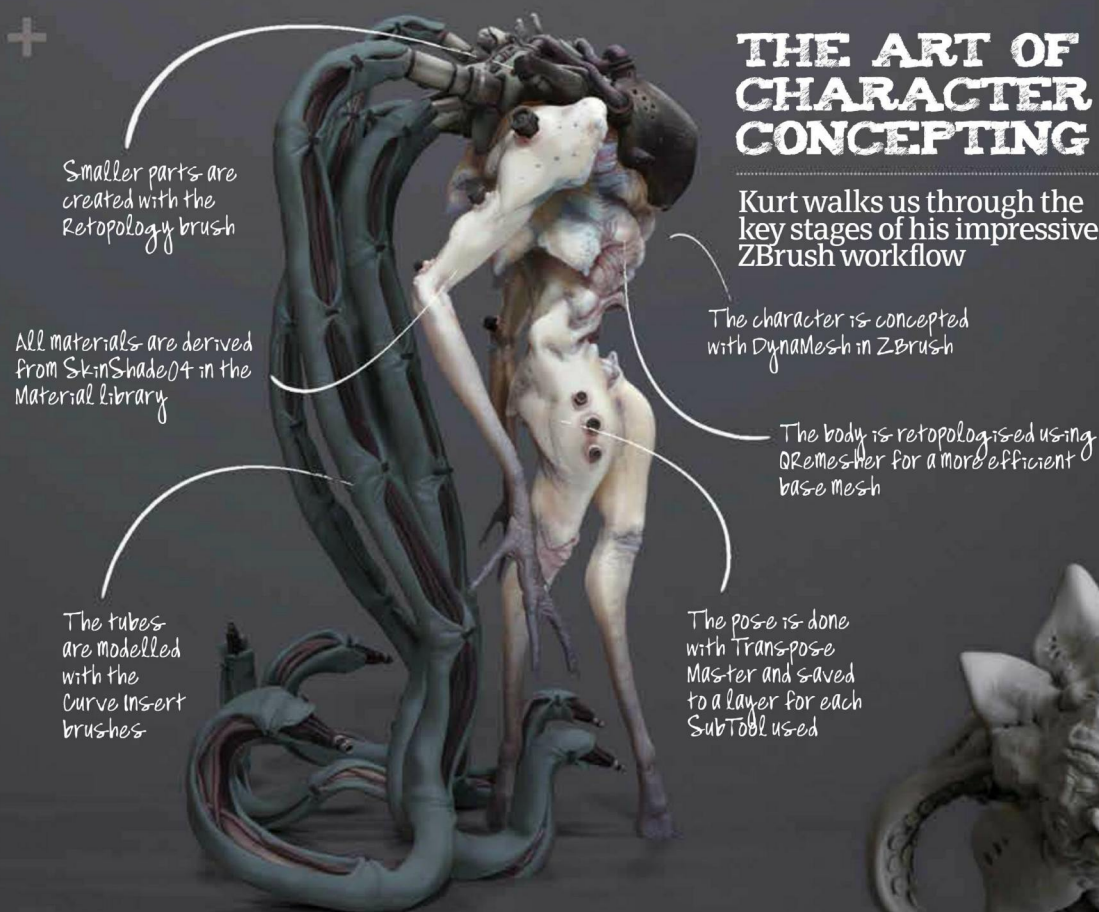
**2012** Took the stage on the Pixologic booth at SIGGRAPH 2012 to present a live demo of ZBrush 4R4's new tools



**CREATE THE  
COVER ON  
PAGE 52**

Create a striking character  
with Kurt Papstein





Smaller parts are created with the Retopology brush

All materials are derived from SkinShade04 in the Material Library

The tubes are modelled with the Curve Insert brushes

## THE ART OF CHARACTER CONCEPTING

Kurt walks us through the key stages of his impressive ZBrush workflow

The character is conceived with Dynamesh in ZBrush

The body is retopologised using QRemesher for a more efficient base mesh

The pose is done with Transpose Master and saved to a layer for each SubTool used

*Please tell us a little about how and where you seek inspiration for your incredible character creations.*

A lot of what I do now is a form of relaxation and therapy... It's a release from the usual day-to-day that I do in the studio, which tends to be complex.

A lot of the inspiration comes from the usual places like movies, games and the art community. My good friends are a big source of inspiration, too; we always have amazing and deep conversations that spark so many cool thoughts. Music can stir up feelings as well, but usually I will turn to music when a character is almost done and I am thinking about how I am going to pose it. I can see the character or creature moving to the music. It's like looking at everything through a cinematic filter, and the music sometimes is the trigger.

Lately... I have been looking more towards the fashion world for inspiration. It's an entire world of art I have overlooked. Some beautiful examples of exploring form and material can be found on the catwalk.

*How have your inspiration sources changed over the years and who do you find is inspiring the community right now?*

The community has come together to form this tightly wound ball of ideas. I see a lot of trends, and a lot of similarities too... Lately, I have been trying to expand where I get my inspiration; like I mentioned before the fashion industry has a ton of gems. Modern art and photography can spark a lot [of ideas] too.

If you have the right mindset, you can find your inspiration anywhere... Every once in a while I see someone really shake the art world up with a unique look or technique, and... what sets them apart is the unexpected. Whenever I see something that really strikes me, it has some element that hasn't been seen before, which is something we all strive for as artists and is very hard to do.

“Before ZBrush I really hated 3D modelling. It was a tedious process that made me feel like a robot and not an artist”

**C** *Watcher*, 2011. This is a one-of-a-kind 3D print Kurt had made through Ownage. It was sculpted in ZBrush, pre-DynaMesh

**D** *Mech Alien*, 2012. More DynaMesh experiments with some Clay Polish. “It’s amazing how much Clay Polish will clean a model up,” Kurt says

**E** *Hammer*, 2012. *Street Sharks*? This was created for a class demo especially for Kurt’s art students at LCAD



## WHY ZBRUSH 4R4 ROCKS

Kurt tells us what he loves in the latest version and what he hopes to see in the future

“I see [the new Curves feature] really changing how we do things. It doesn’t necessarily present anything new in the way of features for 3D tools out there, but how it works is completely different and liberating. It simplifies so many processes, to the point where it opens doors and makes us all think more creatively... “[In the future] I want ZBrush on my iPad. No, but seriously... right now I would like to see Curves implemented in more of the features of ZBrush. I would love to be able to control FiberMesh with Curves. Or to have some Curves that you can save with the tool, so you can come back and get more mileage out of them... Pixologic always surprises me with its new features, though, so who knows where all this is going!”





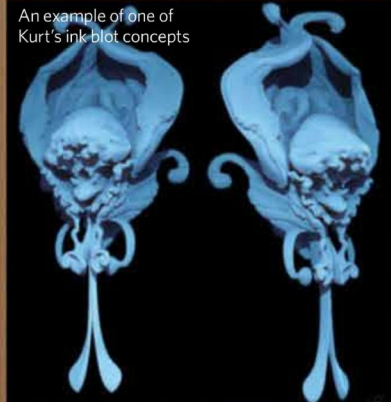
D

## SMASH THE CREATIVE BLOCK

Kurt shares a few of his tried-and-tested methods for shaking things up

• **Ink blot conceiving** "[This is] all about making the tool meet you halfway and present some cool things to you symmetrically. So I will use a Flat Shader in ZBrush, convert my sphere to a DynaMesh object and start distorting it like crazy. I'll use brushes like Spiral, Snake Hook or Standard with an alpha applied to it so that the mesh will explode into a new shape. Because I am in DynaMesh mode with the mesh, I can cut holes into it and get really crazy results. I do all this from the front view with the Flat Shader still applied. Once I am done with this initial pass, I will grab a material with some value to it so I can see the forms and I will start making sense of the shapes on the mesh."

An example of one of Kurt's ink blot concepts



• **Sound wave creations** "This process hit me one of those nights I was working on my laptop with sound waves in Ableton Live. I was trying to see if I could find visual patterns between certain types of songs and I found a lot of similarities: when the drop hits, when there are big blocks of sound versus calmer points. It all related to how a character design is structured when you play with detail and visual rest. So I had the idea of taking a wave file, turning it vertical, and using that as a guide for a concept! It's all related; audio and visual inputs are just different mediums being registered by the same machine - our brains."



E

## KUDOS TO PIXOLOGIC

Kurt explains how the makers of ZBrush have helped him on his way

"[Pixologic does] a great job of reaching out to the users and it really does listen to what everyone has to say. It does its best to get the information out to everyone. I mean, I'm self-taught just from using its forums and the ZBrush Wiki (ZBrush.info) I was able to dive into. People really seem to like the live demos too, the User Group Meetings are getting bigger and bigger. The last one I attended was so packed that everyone was standing trying to get a glimpse of Scott Spencer's and Eric Keller's demos."

“Do what you enjoy, but try to focus on at least one thing that you will improve with each project you do”

*How has your workflow evolved over the same period of time? How do your current tools keep you excited and creative?*

Photoshop has been in a majority of my life now, and I am really happy to continue using it, but in new ways. Before I was colouring poorly-drawn comic book pages, and now I [often] use it to doctor my 3D renders for presentations.

ZBrush has been an amazing addition to my arsenal as well. I can't say that enough... Before ZBrush I really hated 3D modelling. It was a tedious process that made me feel like a robot and not an artist. I talk with other artists that feel the exact opposite, though, so I guess it really just depends.

Part of what keeps me making art and staying excited about the process is ZBrush, honestly. You can feel it in the tool that [Pixologic] strives for the creative path in everything [it does]. That carries into the artist's workflow, which is forever evolving.

I get a lot of joy playing the 'What if?' game in ZBrush, experimenting with new methods and techniques. Sometimes during nights of tinkering I am presented with another idea, which leads to another idea and then another. So the next time I sit down to sculpt something I can attack that piece with a newfound love for the tool. It always feels fresh.

*What, in your opinion, does it take to be a character/concept artist working in 3D? What advice do you have for artists when it comes to staying on top of your game?*

Being a 3D artist is really being a problem-solver, a technical problem-solver. Something I try to emphasise to my students is that there is no single way to complete something, and that the tools can be used in hundreds of different combinations. A problem will come up during the process that you have never seen before, and it is up to the artist to get creative on another level. You can't just draw or paint your way out of it, or change the design to fit the problem.

There are a lot of walls a 3D artist will encounter during a project that just have to be scaled in some way. It's like, 'Here is a bucket of parts, and here is the wall you have to scale. Take these parts and make a robot to carry you up to the top!'

In order to stay on top, I think artists need to always challenge themselves, while at the same time staying productive. Don't fall into the tinker trap, where you're always just experimenting with new methods... Try to have a goal in mind that will push beyond what you have made in the past in at least one area.

*How do your students at LCAD help keep you on your toes?*

I deal with students hoping to enter the games industry as character artists, environment artists and concept artists... They always find the most creative ways to use [ZBrush]. Students will come up with the most interesting questions [during class]... I need to make sure I know my stuff before I ever go mentioning anything in the classroom [laughs].



# Kurt Papstein

**F** Elder Alien is one of Kurt's latest works. He's even recorded a fantastic video of its creation using the Undo History in ZBrush 4R4. "[I] just used the Record Forward History feature in the Movie menu," he says. "I tweaked a few of the settings in the Modifier submenu, but really that is all default goodness"

**G** Created during the beta testing of ZBrush 4R4, this was Kurt's first hands-on experiment with Curves Insert Multi Mesh brushes

Watch the stunning creation of Elder Alien at [www.youtube.com/user/KPtoonsArt](http://www.youtube.com/user/KPtoonsArt)



## WE ALL START SOMEWHERE

Kurt shares one of his earliest sculptures to help the rest of us feel at peace while we improve

"This was one of my first sculptures done in ZBrush. It was made before we had DynaMesh, and before I knew the difference between the PolySphere and Sphere3D. You can see on the top of the character's head the star of triangles and edges. It was a real mess. My solution at the time would be to just subdivide it more. I really didn't know what I was doing [laughs]."



**“You have to know how something is put together before you can break it and be creative”**

*How about your role at Turtle Rock Studios – what does that involve?*

I spend most of my time sculpting creatures. Sometimes I work from a concept and other times I just dive in from scratch. Either way, I am always given the opportunity to explore the design and collaborate with the team, which is great. Typically I work the rough sculpt in ZBrush, high poly with final PolyPaint, retopology and then [the] finished polish work in the [game] engine.

*You've been working with a lot of alien concepts recently. Why is it important to keep expanding your horizons?*

I guess I just go through stages... Aliens are an interesting concept to me and represent a lot of awesome ideas...

You can stay in your comfort zone and still expand yourself and skill set by focusing on technique, tools or your rendering abilities. The point is to do what you enjoy, but try to focus on at least one thing that you will improve with each project you do.

*What are your thoughts on the importance of anatomy for creature designers?*

I think it is crucial. You absolutely have to understand how things are put together before you just go all willy-nilly with the design. You have to know how something is put together before you can break it and be creative. It kind of irks me to hear other artists say that creature art is easier, or that you can just make up the anatomy and it really doesn't matter...

*How did you get on the beta-testing panel for ZBrush, and what's it like getting to play with tools and see them evolve?*

I received an email from the folks at Pixologic shortly after I showed the work I did for *Hunted: The Demon's Forge* on ZBrushCentral. They asked me if I would be interested in testing some new features – I think at the time it was when DynaMesh was coming out, so you can imagine my excitement. It's a real treat to be able to say I am a part of that process.

*Who do you see as artists currently pushing the boundaries of character/concept art in the industry right now?*

Mike Nash is making a killing on the mechanical front. His patience level must be off the charts to have so much detail and design work going on in a single piece.

Another artist that is taking some bold design moves is Andrei Ndo Cristea, better known as Undoz on CGHub. Pascal Blanche's *Hypersleep* and *Ladybug* pieces [also] blew my mind! But someone who is really standing out to me right now is Tanoo Choorat from Thailand, also known as rossonerixx on CGHub. His creatures and aliens are really unique.

*Finally, what does the future look like for Ikameka? Where do you want it to go?*

I want it to take me to the movies. I want it to take me to the printer more, and I want it to sell some more model kits [laughs]. I have a lot of goals for my art, but it is crazy to see where I am right now.

If I could go back in time and tell my younger self where I am going to be in five years, I wouldn't have believed it. I feel really blessed and I couldn't ask for more at this point. But I don't think I am going to stop, and I will just keep looking to the future... I feel like we need some dramatic music to play after that line!





®



Image Courtesy of Dmitry Gaborak

Pixologic.com  
ZBrushCentral.com

WorldMags.net

ZBRUSH®



## Step by step

Easy-to-follow guides take you from concept to the final render

Artist info



Kurt Papstein

3DArtistonline

Username: lkameka

Personal portfolio site  
<http://lkameka.blogspot.com>

Country USA

Software used  
ZBrush, Photoshop

Expertise Kurt specialises in digital sculpting, creature design, and all kinds of character creation using ZBrush

# Create striking characters

## Leona 2012

“A fun and vibrant character creation that’s a little different to my gritty or hyper-real works”

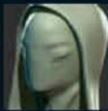
**Kurt Papstein** is a character and creature artist working at Turtle Rock Studios in southern California

This tutorial will demonstrate how to go about concepting a full character in ZBrush. We will take this piece all the way to the end of the pipeline, starting from a sketch, which we'll translate into a 3D concept to build our final character from. After exploring with digital clay you'll end up with a detailed 3D figure.

We will first go over how you can start translating your ideas using DynaMesh, then we'll take advantage of Mesh

Insert brushes to block in the proportions and body parts of the character. We will also cover how to create all of the props and accessories with the new Topology brush.

Each step in this tutorial will have something for everyone and will be focused on sharing some of the newer features of ZBrush 4R4. This tutorial is just the tip of the iceberg, but hopefully it will inspire you to take your sculpting further - and to be more creative with your tools.



## Concept with DynaMesh

Build a rough sculpt to guide the modelling process



A



B

### 01 Define the body

We'll start the project by constructing the main body in DynaMesh. I'm using a concept sketch as a guide. We want to accomplish two things here: first we need to lock down the character's core proportions, which is why we start with the torso and the head. Having them in place will make it easier to build out the limbs. The second goal at this stage is to establish a solid foundation to build the clothing, props and accessories on **A**.

### 02 Use Mesh Insert brushes

To build out the rest of her body, we'll use a lot of the default tools and Mesh Insert brushes located in ZBrush. Using IMM\_BParts in your Brush menu, you can drag out some quick arms and legs onto your character. Once placed, you can further sculpt on them and refine the proportions. We'll also change DynaMesh's Blur setting to zero and activate Polish in order to have a more accurate and clean-looking concept sculpt **B**.

### 03 Finish the concept

We should now have everything blocked in. We have all the major shapes (the body) and medium shapes (the suit) sculpted roughly onto the model. We also currently have one SubTool, with everything on it. It's a little dense in topology, but that's okay for what we need. The point of this completed model is to act as a blueprint for us to build new assets. Some of it will be saved in the end, but for the most part it will be disposed of before we're finished **C**.



C

**A** Starting with a DynaMesh sphere at a resolution of 12, we can proceed to block in the character

**B** Use the default body parts Insert Multi Mesh brush to flesh out the body

**C** Major and medium shapes are defined on one SubTool; smaller details are saved for later



## With the Disc

- KP\_Bags.ZBP
- KP\_Buckles.ZBP
- KP\_PackBuckle.ZTL
- KP\_Polybag.ZTL
- KP\_Spacegirl.ZTL

## Learn how to

- ✓ Concept full characters using only ZBrush
- ✓ Concept props and accessories for your models
- ✓ Use the Topology brush
- ✓ Sculpt hard surfaces
- ✓ Create your own Insert Multi Mesh brushes
- ✓ Model using the Mesh Insert Curve tool
- ✓ Create custom materials and lights for your projects
- ✓ PolyPaint with masks

## Software used in this piece

ZBrush

Photoshop



## Concept

I wanted to revisit an older character idea to experiment with some of the new features in ZBrush 4R4. Creating this character in 3D has been a really fun challenge, which has pushed me as an artist.

Kurt offers his top workflow advice for helmet creation on page 55





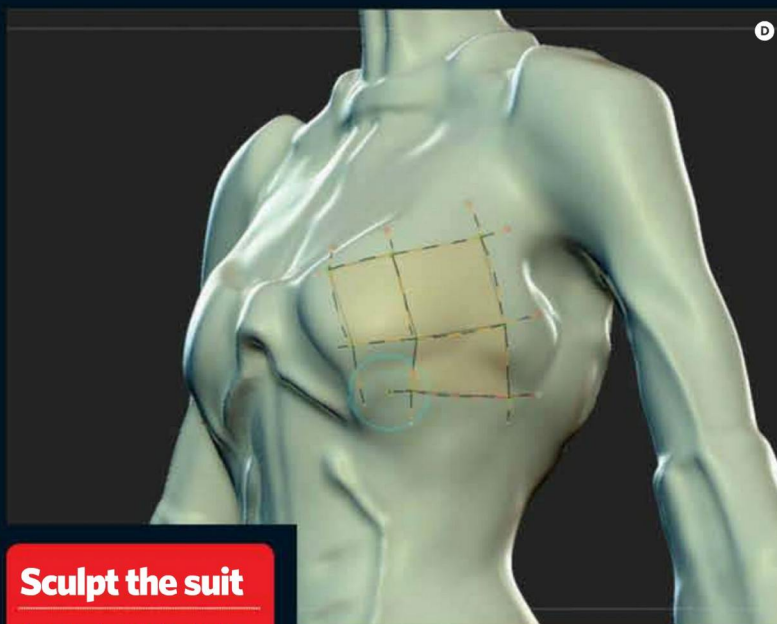


## Piece it together

Use the **Topology brush** to build SubTools

### 04 Topology brush basics

This is where we start building all the separate pieces, with our original sculpt as a guide. Select the Topology brush in the Brush palette and begin drawing edges on your model to define a piece of the armour. Wherever curves intersect, a vertex will form. By using Symmetry, the curves will automatically snap to the centre. To delete a curve, hold Opt/Alt and draw over it with another curve. This function will also clear any unused curves if you hold Opt/Alt and draw on an empty area of the model **D**.



### Sculpt the suit

Once the body is blocked in we can start sculpting all of the suit details onto our surface. If you don't feel comfortable sculpting on your model, you can always duplicate it in your SubTool list and continue working on the duplicate. For this step, I use my organic sculpting brushes like Clay Buildup and Dam\_Standard to build the forms and carve in the shapes. I say shapes rather than details because at this point you shouldn't be worried about the small stuff. You only want to construct the shapes and think about the overall design.



**D** Use fewer curves to keep the topology low

**E** The new geometry that's created from our Topology brush curves

**F** The new geometry is now split into a SubTool using the new Split Hidden feature

**G** Using the Move brush and Clip Curve to adjust vertices at a low-poly stage

### 06 Split the model

Currently our new geometry is combined with the original sculpt. We want to split this mesh into its own SubTool so that we can easily control it in the later steps. To do this, simply hide either the sculpt geometry or the new Topology mesh and open up the Split sub-menu inside the SubTool menu. Notice now that there are hidden meshes, Split Hidden becomes active. This is a new feature in ZBrush 4R4. By pressing this button, anything hidden will be split into a new SubTool. Be careful you aren't splitting any of the new geometry apart **F**.

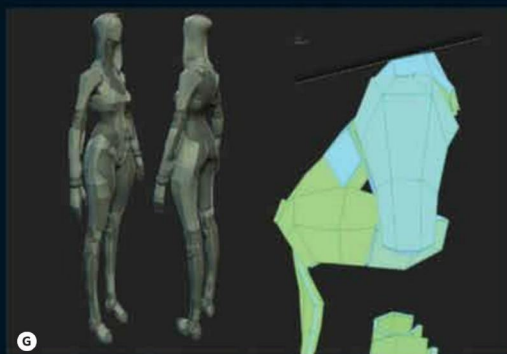
### Model using PolyGroups and Transpose options

Using masking and PolyGroups we can do some precision modelling with our Transpose line. I use the Move Transpose line to universally inflate the PolyGroup I have selected through masking. If you Ctrl/right-click inside the outer handle and drag, the Transpose line will do a universal inflation to the mesh. I do this for the inner PolyGroups as well, to push them in further and create more of an edge.



### 05 Create the mesh

In order to turn our orange preview mesh into an actual piece of geometry, we have to adjust a few things. First we want to adjust our brush size, as this will directly affect how thick the model we're creating will be. A value of 100 will create a very thick extrusion of geometry from our topology curves, whereas a value of 0 will create single-sided polygons. Then all you need to do is click on the mesh to generate some new geometry from the curves **E**.



### 07 Work with low geometry

At this stage it's really easy to manipulate the geometry to be exactly how we want it. To move vertices around, we use the Move brush. By turning its brush size down to 1, we'll be able to move only one vert at a time. This is extremely useful, as this way you don't accidentally move other vertices around it. The brush size is very similar to a soft selection in a program like 3ds Max. You can also quickly clean up these faces by using the Clip Curve tool to manipulate multiple vertices along the same plane **G**.



## 08 Edge creasing

Edge Crease is ZBrush's way of managing smoothing groups. A crease defines a hard edge, so even when you subdivide your mesh with Smt turned on, those edges will remain hard. Open the Crease drop-down under the Geometry sub-menu, located in the Tool menu. To quickly crease the object, click Crease All. You can also control your creasing by hiding certain parts of the mesh and clicking Crease or Uncrease. This is an easy way to keep areas rigid, without sculpting them manually later **H**.



## 09 Edge looping

For this step, we're going to use the outer PolyGroups to create additional Edge Loops on the model for some mechanical details. By hiding the outer and inner shells, we are left with the side PolyGroups. Once they are hidden, open the Edge Loop drop-down in the Geometry sub-menu and click the Edge Loop button. By default it will create four additional loops and PolyGroups. You can adjust this with the Loops slider. Now we have new PolyGroups to mask with. You can inflate them using the Deformation menu or your brushes **I**.



## 10 Clean up the mesh

We've now defined our mesh with additional Edge Loops, then creased and finessed it into place with the Move brush and Clip Curve tool. Next we'll start subdividing our mesh and smoothing some of the details out. You may notice some of the creasing affecting areas you don't want it to, or that areas are just too crisp and jagged-looking. Divide your mesh more so that the Smoothing brush will have a smaller impact on your geometry. Begin brushing some of these imperfections out to make a clean surface without destroying the form **J**.

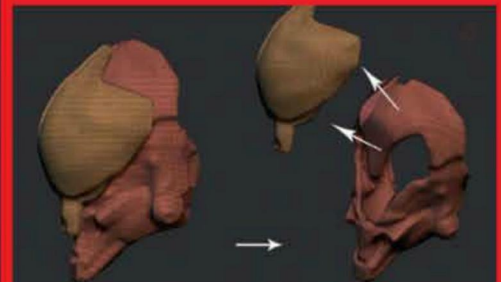
## Pro tips for helmet design

Here we have my three-step workflow solution for great helmet designs. This is a simplified version of the character tutorial, showing you how you can take the same steps and apply them to a simple object or prop to enhance your character creations



### Concept with DynaMesh

To begin, I simply append a sphere into my tool to act as the helmet. I move it into place on the character's head and turn DynaMesh on. Because of its size in space you may need to turn the resolution of DynaMesh up to get the information you need. We still want to keep it as low as we can, because we only want to capture the general shapes. Just like the body armour, I use brushes like HPolish, Clay Buildup and Dam\_Standard to define the design.



### DynaMesh with Groups

I turn Groups on in the DynaMesh drop-down menu so I can add more meshes without fear of DynaMesh fusing them together. This is a really powerful way to stay organised in your SubTool palette, by keeping things together with PolyGroups, without sacrificing the freedom of DynaMesh. I apply some additional shapes using Mesh Insert primitives, like the cylinder and the cube, then cut them into shape with Clip Curve.



### Finish up

Once we're happy with the design and the overall shapes we can commit to it, turn DynaMesh off, and begin subdividing the mesh if we need to. I will now add detail with the usual sculpting brushes, as well as alphas. This is also a good time to use some of our other Insert Mesh objects to add more technical details, like plugs and straps.

**H** A combination of Crease and Uncrease when hiding areas to get hard edges

**I** Edge Loops are used to create great additional detail in your base mesh

**J** A subdivided mesh will enable you to iron things out without losing the overall shape





## Add some detail

Sculpt the small pieces to bring everything to life

### 11 Mesh Insert objects

We now have all of our meshes, complete with subdivisions and creasing. They are finally ready for some additional details, so we will now go through each SubTool one at a time to add any Mesh Insert objects that they need. Things like rivets, straps, buckles and plugs are perfect candidates for this step. First you will want to duplicate the surface that needs these Insert Meshes and delete its subdivisions. This will act as a temporary surface to place your objects on. When you are done, simply delete using Delete Hidden in the Modify Topology drop-down under Geometry **K**.



### 12 Mechanical creasing

With our smaller objects in place as a separate SubTool, we can go back to our larger shapes and begin sculpting some mechanical edges and details. For this step we'll use brushes like Dam\_Standard once again, the Standard Brush, and the Pinch brush to create clean cuts. To better control your brushwork you can turn on the Lazy Mouse feature in the Stroke menu. This will then average your hand movements out, making the detail come out much smoother. You can adjust the effect of Lazy Mouse by turning up the Lazy Radius slider **L**.



## The little things

Using DynaMesh and Transpose modelling techniques, I've created some custom Insert brushes (supplied with this tutorial). By staying in Orthographic mode, you can easily manipulate vertices and cut through your DynaMesh objects with precision. With this tutorial you will find an Insert Multi Mesh of unique bags, as well as buckles. These assets can be used on just about anything, complete with PolyGroups for further customisation to better suit your needs. I've used these objects on the character, along with some existing Insert Meshes like the IMM\_Zipper to add further interest and detail to the character.

**K** Create duplicates of the SubTools using Insert Meshes as placeholders to draw on without subdivisions

**L** Use brushes with Lazy Mouse to create smooth and even strokes

**M** Dragging out alphas onto the surface to create subtle mechanical details

### 13 Use alphas

Having a large collection of alphas at the ready is a must for any digital sculptor. If you don't have any at hand, you can grab a bunch from the Pixologic Download Center ([www.pixologic.com/zbrush/downloadcenter](http://www.pixologic.com/zbrush/downloadcenter)), or you can create your own. It's best to create a unique look with your own alphas, but there are plenty out there to choose from. Here we're using the Standard brush, with DragRect as our stroke. This enables us to drag out the details we want in a very precise way **M**.





# Finishing touches

Wrap up the character for its final presentation

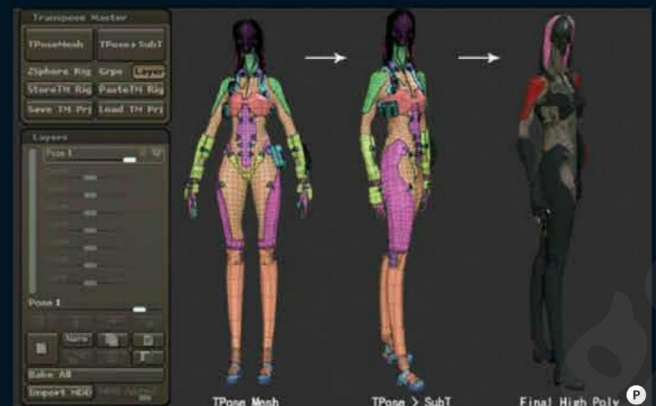
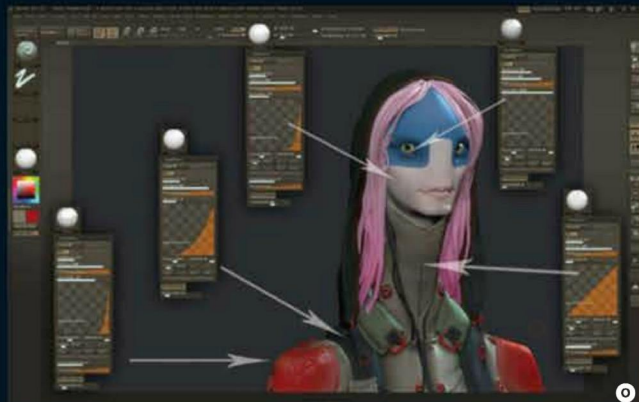
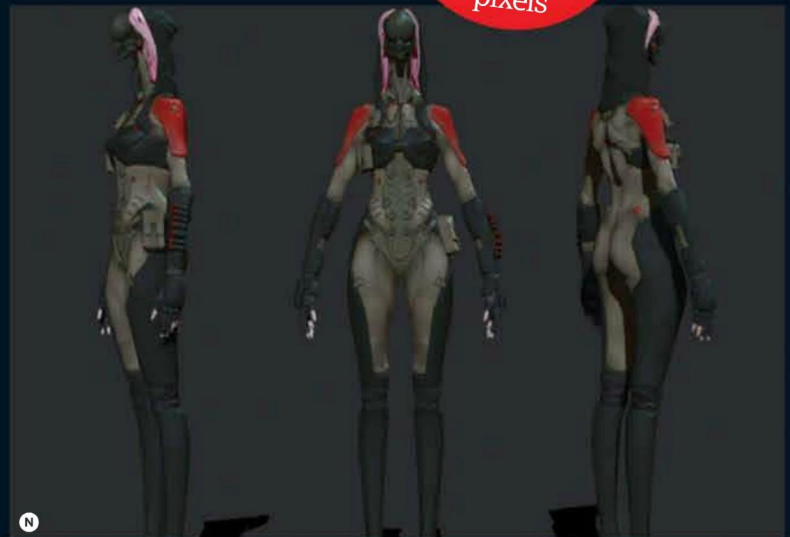
**48 hours**  
creation time  
Resolution:  
1,252 x 2,016  
pixels

## 14 PolyPaint with Masking

To add some colour, start by turning ZAdd or ZSub off from your brush and turn on RGB. Once you have filled your mesh with a colour, by either painting it or going to the Color menu and clicking Fill Object, you can then add some more interest to the PolyPaint through masking. Open your Masking sub-menu under Tool and cycle through the different types. You can invert these to affect other areas of the mesh. Use Mask By Smoothness to pop details **N**.

## 15 Custom materials

As the artist you can use any combination of materials or MatCaps that you want. In this case, we'll stick to using SkinShade04 from the Material list. Make slight modifications for rubber, metal, cloth and skin materials. The primary slider that we'll adjust is the Specular slider, and the Specular curve. The general rule of thumb is if the slider goes down, then the curve will be more towards the centre, making the specularly more subtle and broader. Also play with the Wax Modifier for each material to suit **O**.



## 16 Pose your character

Using Transpose Master we can move all of our SubTools at the same time. By clicking T-Pose Mesh in the Transpose plug-in under the ZPlugin menu, all of the SubTools are merged at their lowest resolution to be adjusted together. This is why it can be really helpful to have low-poly base meshes. Through Masking and Transpose rotations you can pose your character. When finished, click T-Pose to SubT to transfer the pose to the high-poly model. With Layer turned on before transferring the pose back, the new changes will be applied as layers on all your SubTools **P**.

## 17 Rendering and presentation

For the final presentation, take advantage of all the BPR filters to pull out the best in your work. Some of the most applicable include Sharpen, Orton and Blur. Each filter has settings that will change which part of the image it will affect. Blur works best with its depth sliders tuned to simulate lens effects. It's good to use Orton to brighten the lighting, excluding the shadows to create more contrast. With some careful adjustments to the filters, and some additional effects in Photoshop like Render Lighting and Curves, you can finish your piece off in a really professional way **Q**.

## Light with LightCaps

LightCaps are a great way to control your lighting. You can also use them to capture and render new lights from an HDR image by loading them into the Background sub-menu under the Light menu and clicking the LightCaps button. I try to keep it as simple as possible and will use ZBrush's default light with one LightCap. This LightCap will usually be backlighting, with blue colouration and shadows turned off.



**N** Mask by Smoothness, and Mask Peaks and Valleys to fill the unmasked areas with colour

**O** Fill your meshes with your material using Color: Fill with M turned on your brush

**P** Using the Transpose Master plug-in with the Layers option turned on will enable flexibility

**Q** BPR Filters and Photoshop compositing can be used to enhance your renders



“With regards to the smog, I used two layers to form the final effect. One surrounded the edge of the body, helping draw the outline of it; another was floating in the air around the character, hiding it in a fine mist.”

**I made this...**  
Incredible 3D artists take us behind their artwork

Artist info



**Yonglin Yao**

Website

<http://damonyao.cgociety.org>

Country China

Software used 3ds Max, V-Ray, ZBrush, Mudbox, Photoshop

Bio Yonglin is an artist working in the arch-vis industry

Software used in this piece

3ds Max

V-Ray

ZBrush

Mudbox

Photoshop

“When editing the hair, to get a more natural effect I divided it into different parts according to the hairstyle and the direction of growth. I copied it when I had completed the body and then edited the quantity and thickness, which brings more detail into the hair.”

## Memory 2012

[This image tries] to present a girl who, in a hospital, recalls her [loved one] that she has lost. I wanted to make the special meaning of this picture understandable at first glance, so that you are able to [imagine] all of their sweet memories. I used Hair Farm and Hairtrix to make the hair. To make the edge of the [skirt] I used the Max Path Deform modifier [in 3ds Max]. [The smoke effect was created with] FumeFX.



# EXPOSÉ 10



**CGWORKSHOPS**  
COURSES FOR THE DIGITAL ARTS COMMUNITY  
[workshops.cgsociety.org](http://workshops.cgsociety.org)

**CGWorkshops offers short, world class, fully mentored, online training courses.**

## LEARN FROM THE BEST IN THE WORLD

**Interested in FX, 2D, 3D or even writing code? CGWorkshops** has short, fully mentored, online training courses to help you improve your reel and become better at what you love doing. Our instructors work at places like Blizzard, WETA Digital, Image Engine and Sony Santa Monica. Get personal feedback in a supportive online classroom environment.

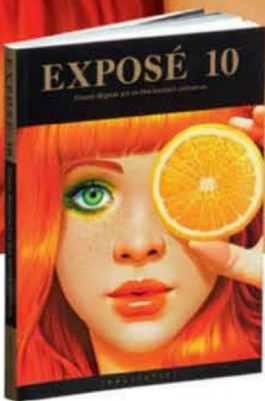
**We have lots more great CGWorkshops online. New courses starting each month.**



[workshops.cgsociety.org](http://workshops.cgsociety.org)

Image courtesy: Nele Klumpe  
CGWorkshop: Becoming a Better Artist with Rob Chang

Image courtesy: Daniela Uhlig, GERMANY Red Orange



**TENTH  
ANNIVERSARY  
edition of  
EXPOSÉ**

# ON SALE NOW



EXPOSÉ 10, the most inspirational collection of digital art in the known universe, with 548 incredible images by 380 artists from 65 countries.

[ballisticpublishing.com](http://ballisticpublishing.com)



## Step by step

Easy-to-follow guides take you from concept to the final render

Artist info



**Sean Hargreaves**

**Personal portfolio site**  
www.seanhargreavesdesigns.blogspot.com

**Country** USA

**Software used**  
LightWave, Photoshop

**Expertise** Sean works in the film industry designing how films, commercials and videos will look. He uses LightWave in his work to clearly representation his concepts

### Software used in this piece

LightWave

Photoshop

# Sci-fi interior creation

## Bridge of the Automatons 2012

“ This futuristic interior has been created using LightWave for the majority, and Photoshop for the post-production work ”

**Sean Hargreaves** is a production and concept designer for the film industry

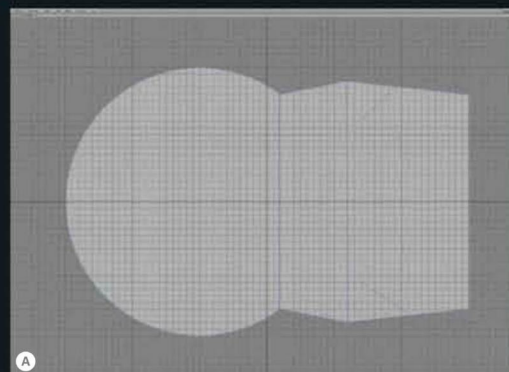
**T**his tutorial will show the stages - from the first steps of designing to the finished rendering - of creating a spacecraft cockpit interior manned by robots.

It will cover thoughts on how to layout the design and what to emphasise in terms of detail, lighting and surfacing, as well as how to choose the best angle to render from.

Using LightWave software I will show how to easily create some of the parts that will

make up the final design, as well as talk about the emphasis on the balance between detail and simplicity in a design such as this. The image design, construction and final rendering will be completed as if for a static concept design, as opposed to an image for animation.

The design will be finished within LightWave, with post-production completed using Photoshop with no pre-sketches involved at all.



A

**A** Here you can see the basic plan view

**B** Perspective view

**C** The seats and rear navigation of the interior

**D** Filling out the space





## Learn how to

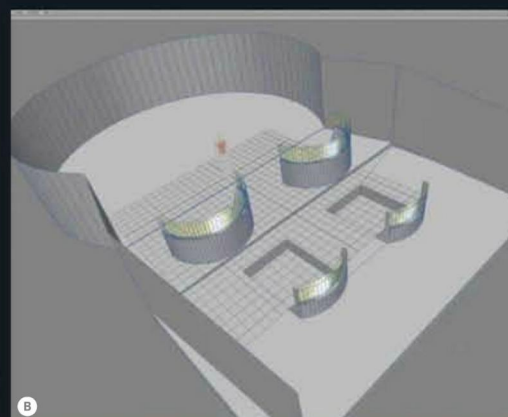
- ✓ Design pre-layout
- ✓ Establish a point of view for the presentation
- ✓ Master the basics of subdivision modelling
- ✓ Define the importance of detailed design as opposed to clean, and vice versa
- ✓ Finish with post-production using Photoshop

## With the Disc

- Interior OBJ file
- Screen graphics PSD files
- Tutorial screenshots

## Concept

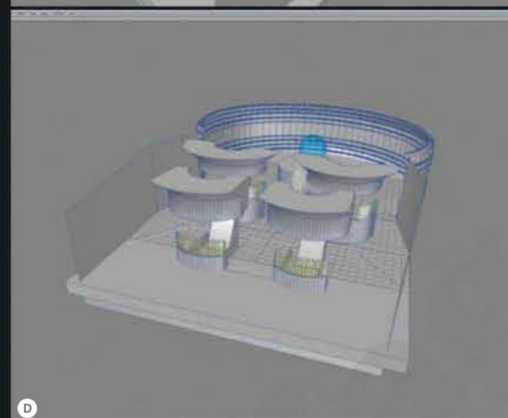
I always try to keep a strong shape theme throughout. I emphasise and change detailing where needed in order to guide the eye through the interior. Lighting is very important and can completely change the look of a design just by a simple light choice, colour, type, or placement, so it's very important to always think about the lighting when building the model. It's also very important not to cram an interior with so much stuff that there is nowhere to move or see most of the interior, as the viewer needs to understand what they are looking at. It's a careful balance that you always need to keep in mind in your work; the balance between objects, details and lighting.



B



C



D



# Make a 3D design template

Concentrate on the basic shapes and their placement

## 01 The plan view

This is the template where we'll make our overall rough shapes within the interior. These first four steps will offer an overall guide – or template – for the final design. Have a clear idea of what your interior is to contain. I know that I want two areas: the pilot consoles in the front and a circular navigation area at the rear **A**.

## 02 Include pilot consoles

I start to add the consoles. Remember: these are templates (or guides) and are not the final designs, although the shapes may be similar. I am just roughing them in, so as to make sure that the shapes and sizes

work. It is a quick and simple way to inform yourself whether or not your overall design shape is working for the final rendered angle **B**.

## 03 Add seats and rear navigation

Here I'm adding the rough seat shapes as well as the rear navigation showing the digital globe and some wall panelling. I want the seats to be rather bulky with a high back, plus I want to have some organic shapes on them, so larger is better. As most of the detail will be at the front, the rear will be designed in more of a minimalist look. All these details have to be considered to decide on the more important objects **C**.

## 04 Place more objects

Here you can see another overview of the interior's major scene elements. As you can see, the consoles, seats and overhead screens take up a large part of this interior. I know that I want to add overhead consoles to fill out the interior, as well as have four dedicated navigation or work stations that are identical, so I'm building these shapes slightly oversized as a worst-case scenario, knowing that they will probably get smaller as I finalise the design. In building the upper and lower consoles I am using the Lathe tool, which I will explain in more detail in later steps **D**.





## Model the elements

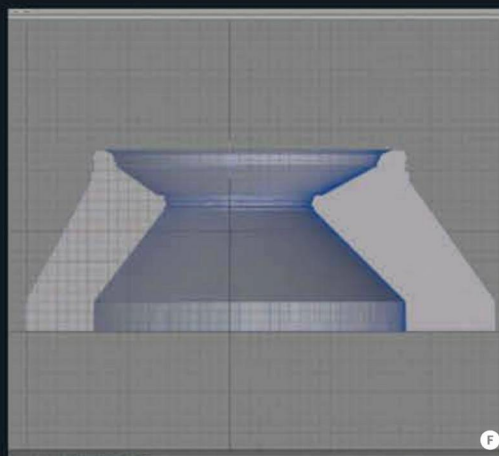
Use the template to design and build objects

### Final rough object placement

Here, as you can see, all the rough model shapes are in the interior. I know the angle I want to render from so I place my viewpoint from that angle to check the placement and sizes of the consoles, screens and chairs. I have added a six-foot human for scale – always try to have a human in there during your modelling stage to check for scale. A robot I have pre-made for the final design will replace this human. At this point I can see I have to make size adjustments to the main objects, which I will do in the final build.



E



F

### 05 Make the console section

Using the Pen tool in LightWave I place points to make the section of the console – this shape represents a slice through the console. I move the points around until I get the desired shape, keeping in mind what it will look like when I introduce the next step **E**.

### 06 Lathe the section

Knowing I want to partially lathe it, I place the section a certain distance from my central lathe point. I then choose the Lathe button, place my cursor on the centre point and pull down slightly to lathe the section into a three-dimensional shape. By hitting the N key I pull up the Numerical window that enables me to type in the degrees to which I want the section lathed. In this case I find through experimentation that 120 degrees is what looks best. Of course you can make your own assessment for your personal piece **F**.

### 07 Shape the seat

I will make this seat knowing I will move into subdivision (sub-d) modelling at a certain point, as I want the seat to be organic. Modelling between regular and sub-d can be tricky, and I keep an eye on both my polygon count and sections, or edges. I start with a box and, using the Knife tool, cut in my sections, as well as using the Extrude tool to pull out the base. I then begin on the upper seat, detailing by choosing multiple polygons and using the Bevel tool. I then once again choose the same polygons and push them back, bevel, choose again and pull them forward, again keeping in mind what it will look like in sub-d **G**.

### 08 Regular and sub-d modelling

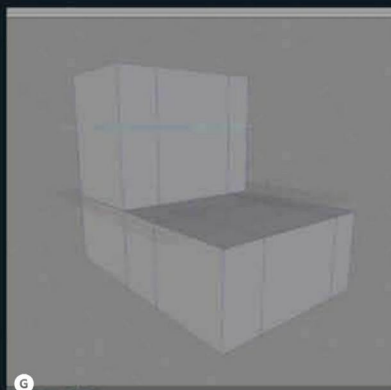
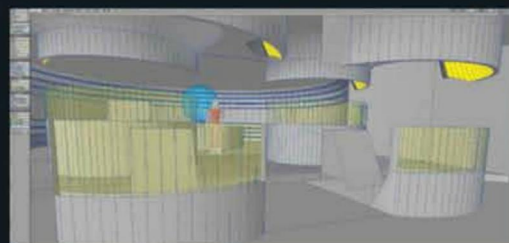
I continue to model the seat, detailing out the top half and picking points to move corners and polygons around. Once I have the basic shape of the seat I hit Tab and the model turns into a subdivision model that's much more organic. When subdivision modelling, the greater the polygon count the tighter your shapes will be. Depending on how organic you want your model you must always keep an eye on your polygon count as well as where your edges lie. Even at this stage of the modelling process you can still direct the mood of your scene **H**.

**E** A Pen tool section created for a console

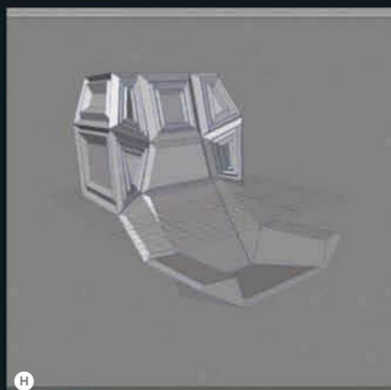
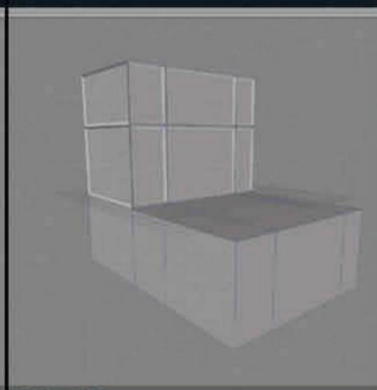
**F** Using the Lathe tool

**G** Subdivision modelling

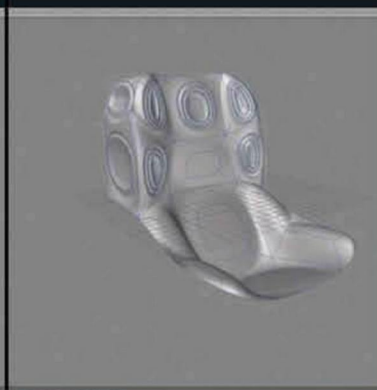
**H** Making organic adjustment



G



H





## Robot design

My robot was designed using the same techniques as shown in this tutorial. I wanted to make a robot that had interesting details while not being overbearing, as the image is focused on the interior. It's always good to have an asset library of objects you've made or acquired so that you don't have to re-model them from the very beginning every time you start a new project.

Design is all about shape, proportion and details. Like a painting, there is a careful balance. You don't want to overwhelm the viewer with too much, and it's important to be subtle without being light on the look. One of the hardest things for a designer is removal. It's a careful balance between adding and removing detail: learn to decide what is important and what would be better left out.

➊ Further Boolean modelling on the screens

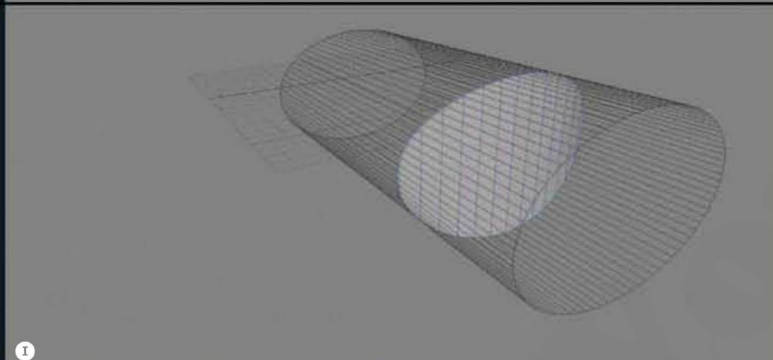
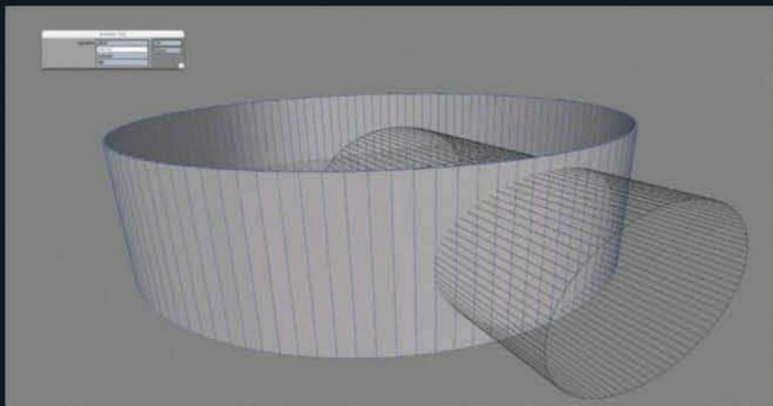
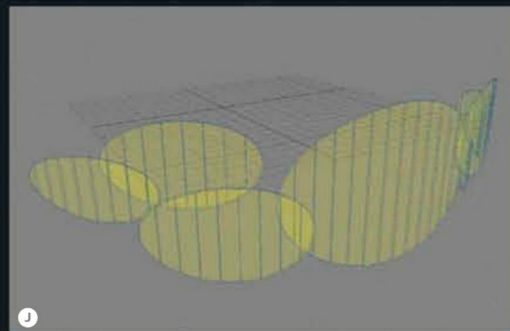
➋ Placing the console screens

## 09 Make the elliptical screens

I make a tall ring following the size of the top of my console, then a horizontal elliptical cylinder on another layer. LightWave uses layers where every model can be made on a separate layer that can itself be turned on or off. I make sure that the tall ring layer is active and the horizontal cylinder is seen and then I hit the Boolean button, which brings up a window. In that window I choose the Intersect button and hit OK. The result is one of seven screens that I will make in the same way, in different positions. Boolean modelling is a technique I use a lot – but not if I'm going to work in subdivision modelling as well, as the mesh gets compromised and your sub-d surface can get severe anomalies ➊

## 10 Set the console screens

Here I make seven screens, rotate them and then place them into the positions where I want them. I colour and make them semi-transparent just to get a rough read of what they might look like in terms of the overlays. ➋



## Artist Showcase

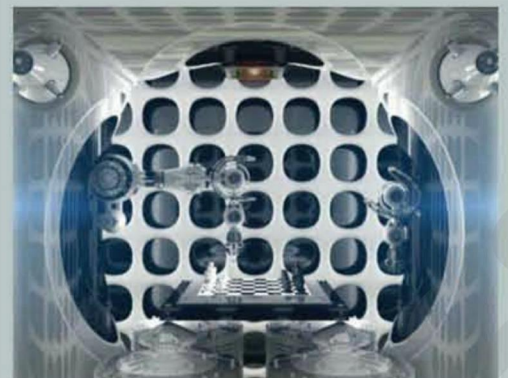
### Sean Hargreaves

As well as a production and concept designer in the film industry, Sean is also an illustrator, using LightWave and Photoshop in his artworks



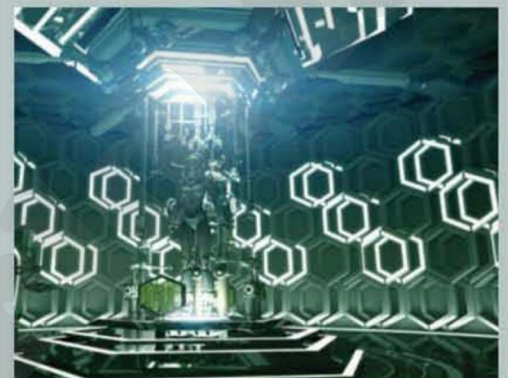
### Cren LightWave (2010)

Sean wanted to create an epic future cityscape and spent a lot of time making parts. The result was a heavy polygon count and a long render time, but the final image was well worth it!



### • • • LightWave, Photoshop (2010)

Sean has always liked labs, clean rooms and complex robots doing simple tasks. In this image, he's combined all of them

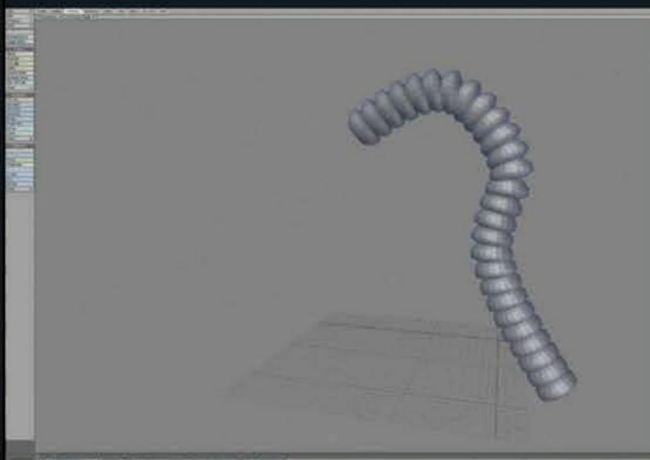
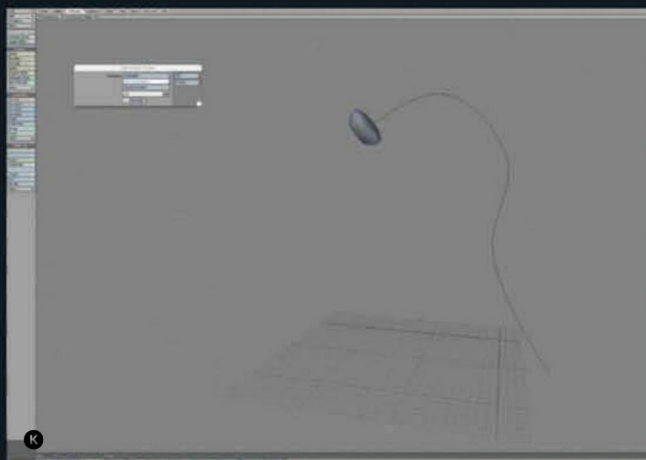


### Concentric Diaphum LightWave, Photoshop (2010)

Sometimes Sean will get an image in his head without any explanation. For him, the most compelling images are those that he doesn't know what they are. "Mystery is good!" he says



## + Model and place elements Detail out the consoles and more



### 11 Craft the articulated cables

Electrical cables are always good to make an interior of any control area believable. To make the cables that will go around the base of each upper and lower console I add a single modified disc shape on one layer, then on the next layer, using the Spline tool, I make my path. This is the path that the cable and the shape will follow upon duplication. Next I go to Multiply>Duplicate>Rail Clone, and this pulls up the Rail Clone window. I choose Uniform Lengths and type in 26 to determine the amount of duplications I will have on the shape I've made. To finish the step I hit OK and continue adding simple box shapes to the console exterior **K**.



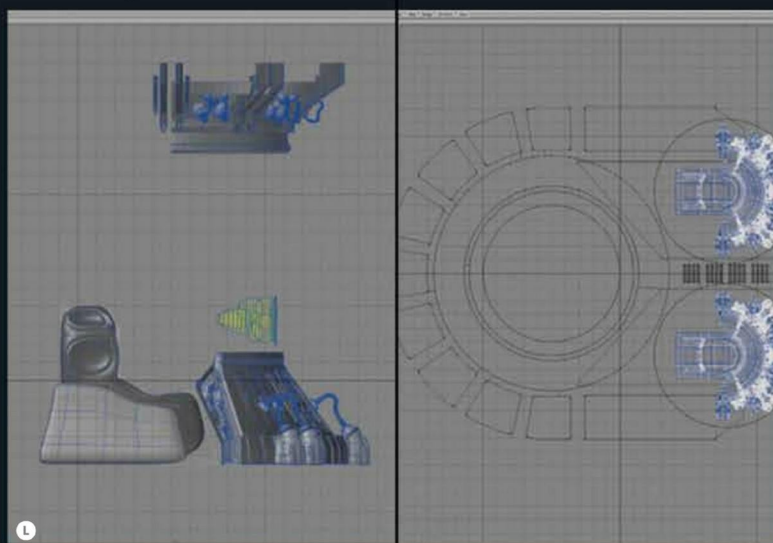
### The finished interior model

Here you can see the overall look and positioning of items in the interior. It's at this point I select each layer that contains the individual components and label them for surfacing. I have concentrated on modelling the more prominent parts in the foreground; the rear navigation area is all modelled using the same tools and procedures.

**K** Using the Spline tool

**L** Apply the Mirror tool

**M** Checking the overall model

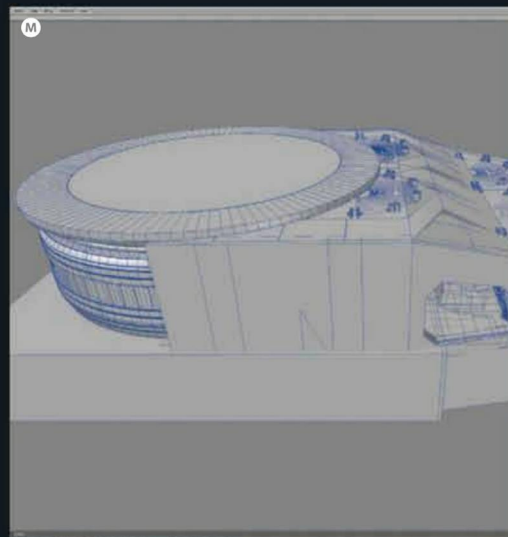


### 12 Duplicate more sections

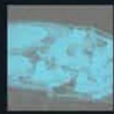
I choose the console and, using the Mirror tool, I duplicate it vertically to add the overhead screen. I then manipulate its proportions and add some small details so aesthetically it isn't an exact duplicate. Next I choose the upper and lower consoles, chair and screen, and then copy and paste to another layer. I place the two console control areas relative to my rough two-step floor. Using the Mirror tool again, but this time in the Top view, I duplicate along the X-axis. I now have my four control areas complete **L**.

### 13 Gain overall views

In these two steps I am checking the overall views, and you can see the shape of the exterior and interior of the design. In this step the exterior is rough as it's not to be seen in the render, but you can see the forward section with its window openings that are critical in terms of reflections and shadows when using outside lighting. It's very important to model the entire 360 degrees of an interior, especially if you have reflective surfaces and want accurate lighting and shadows **M**.

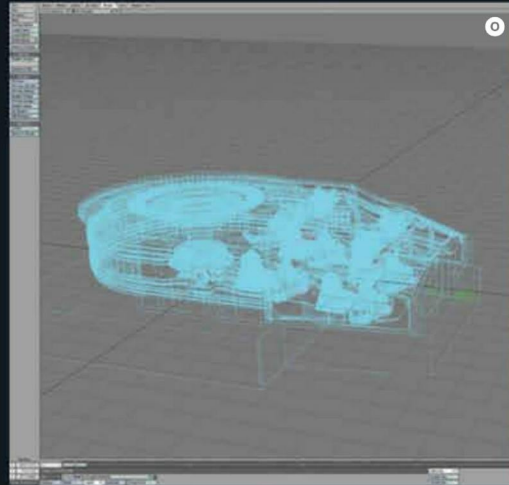






# Lighting and rendering

Now we get to make the scene look realistic...



## Post-production techniques

What we see with our naked eyes in reality and photography has anomalies and is more organic. Also, a lot of concept artists now use a 3D model as a rough guide, which they light and render and then do paint-overs on. Careful study of your surroundings and photography will inform you of what is real. Try to equal the world around you, the real world!

### 14 Place the interior lights

Now in Layout – in LightWave, this is where you set up your scene lights and camera as well as render – I am placing the lights. I have also imported my pre-made robots and placed them. Doing a series of very rough render passes, I experiment with what works best for the look I want, slowly playing with the light levels and colours (I tend to like cool lighting as opposed to warm). I decide that point lights will work perfectly for this rendering. I also turn up the Luminosity to around 200% on my luminous polygons in the navigation area. These luminous polygons aren't actual lights (they don't produce shadows), but using radiosity they can appear quite nice, very similar to fluorescent lighting **N**

### 15 Include the exterior light

Here you can see the single exterior light (on the right and activated in the image). I started with a distant light, but the harsh shadows weren't working for me, so I switch to a spotlight for better control **O**

### 16 The raw render

Just prior to the render I go into my Camera Properties window and set the size of the final image as well as the depth of field; in this case I set my focus on the standing robot and the Depth of Field F-stop is set to 4.0. Everything in reality has depth of field where the foreground and the background are a little or a lot out of focus, depending on your settings. I always use depth of field, as it takes a portion of the synthetic feel out of your final image and makes it that much more real. Now I have my final raw render, I can start my post work. Using Photoshop I will add bloom to the lighting, apply lens flares and do an overall colour grade to the image, in this case a yellow-green tone **P**

### 17 Complete the final render

I can now finish up my post-render Photoshop work. I add some grit, atmosphere, bloom the source light, add flares and alter the overall colour of the image. The final look is totally subjective in any piece of art or design work. With my image I'm going for an atmospheric feel, with an almost dreamy, distant quality that is broody but believable **O**



30 hours  
creation time  
Resolution:  
6,000 x 3,800  
pixels

**N** Place some interior lights into your LightWave scene

**O** Set up an exterior light to create more atmosphere

**P** Make your raw render and get ready for post!

**O** Finish up with post-production work in Photoshop



## House in Alentejo 2012

This is my latest project, which is an image created for a modern farm where I have been inspired by contemporary architecture. I've tried innovating traditional architecture to create a usual environment where we can see farm animals and olive harvesting - which is one of the traditions we have here in Portugal.

*I made this...*  
Incredible 3D artists take us behind their artwork

Artist info



Sérgio Merêces

3DArtistonline

Username: smerces

Website

www.sergiomerces.com

Country Portugal

Software used 3ds Max, V-Ray and Photoshop

Software used in this piece

3ds Max

V-Ray

Photoshop

“ [I modelled all the vegetation] including the oaks, olive trees and grass. For the trees I used the script AvizStudio Tools - ATree3D, which was very useful and simple [to use] ”

“ [With the lighting] I tried to create a photorealistic look, so... I used an HDRi dome and a light for the sun. [Be sure] to look at [your] camera settings because they play an important role in the balance of the scene colours. At this stage the creation of good materials for objects also plays a very important role for the photorealism ”



don't forget your  
3D Artist voucher code

10%  
**DISCOUNT**<sup>†</sup>  
USE CODE: 3DA1012B

# RESELL

Cloud Backup  
with unlimited storage  
to all of your customers

For just **£39.95** a month for UNLIMITED customers

30 day money back | White label everything | Instant online setup

**livedrive**<sup>™</sup>

[www.livedrive.com/resellers](http://www.livedrive.com/resellers)



Questions? Call 020 3137 6446

<sup>†</sup> Offer valid for 3 months from publication date. Discount will be applied to all costs at checkout (set up fee, branding fees, annual fee and/or first month fee).



## With the Disc

- Soulburn Scripts courtesy of Neil Blevins
- Building Generator (MAX script file) from Tyson Ibele

### Tutorial files:

- Arch\_History\_WF (MAX file)
- Tutorial screenshots

## Learn how to

- ✓ Model different historical styles and traditions
- ✓ Create custom details with poly and spline modelling
- ✓ Use scripts to speed up your 3ds Max workflow
- ✓ Customise your toolbox
- ✓ Manage your 3D scenes more effectively

### Software used in this piece

3ds Max

V-Ray

## Concept

The concept is a representation of the history of architecture from 400 BC to the turn of the 20th Century. The buildings we'll model have been inspired by the Parthenon, the Basilica of Constantine, Salisbury Cathedral, the Palazzo Medici Riccardi, Bedford Square and the Reliance Building.





# Model with scripts

Arch tower 2012

“The aim is to create a photoreal architectural visualisation representing the history of architecture for the purpose of showcasing 3D architectural modelling techniques”

**Chris Kowal** is a 3D artist working in arch vis

**In this first of a two-part tutorial I am going to show you how to model different types of architecture styles, as well as how to create and manage a large scene.** By creating separate files, then referencing and combining them, we get great scene control and RAM management before we have to convert objects to

proxy. We are going to use scripts to speed up our workflow and add details to our models. Scripts are an important part of modelling and I would like to introduce you to a couple that I use.

Screenshots have been supplied as tutorial files for those of you wanting to examine settings up close.

*Step by step*  
Easy-to-follow guides take you from concept to the final render

**Artist info**



**Chris Kowal**

**Personal portfolio site**  
[www.chriskowal.com](http://www.chriskowal.com)

**Country** Canada

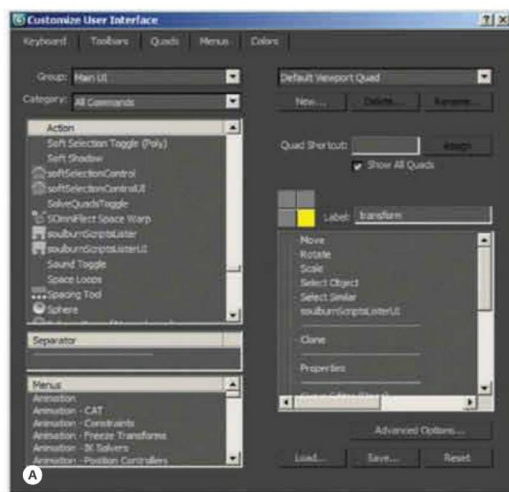
**Software used** 3ds Max, V-Ray

**Expertise** Chris primarily does architectural visualisation work. He is interested in most styles, but his main focus is on photorealistic work



## Model the base building

How to craft classic columns



**01 Set up 3ds Max** First we want to add some scripts to 3ds Max. Install the Soulburn scripts from Neil Blevins (supplied, or go to [tinyurl.com/soulburnscript](http://tinyurl.com/soulburnscript)) and the Building Generator script from Tyson Ibele (supplied, or go to [tinyurl.com/buildinggen](http://tinyurl.com/buildinggen)). Once installed, we want to add the Soulburn scripts to the right-click menu. Under the Customize tab on the Menu bar, go to Customize User Interface. In the Quads tab of the Main UI Group, under All Commands, find the Soulburn Scripts Lister UI and drag it into the default Viewport Quad list. Save the configuration and you will now always have the Scripts Lister UI available when you right click. We now set the units to millimetres, so under the Customize tab in the Menu bar, go to Unit Setup and select Metric Millimeters **A**.

**A** Customisation of the 3ds Max interface is a powerful way to speed up production

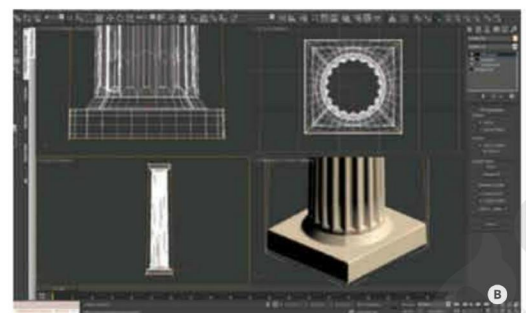


### Take advantage of Helium

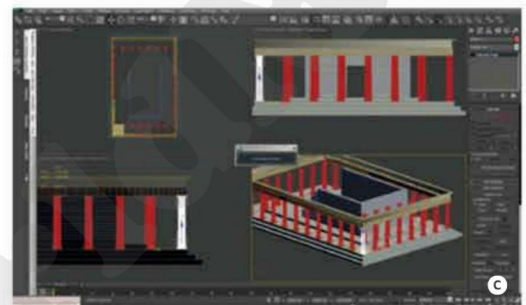
Helium is a script that you install prior to the Building Generator script. This gives 3ds Max users a framework to create scripts in the form of flowcharts like the node-based Material Editor. Consider it a framework for your custom UI controller. This type of graphic interface is a much easier way of working and I find the node interface in general an easier way to understand complex UIs. For more info visit: [www.scriptspot.com/3ds-max/plugins/helium](http://www.scriptspot.com/3ds-max/plugins/helium).

**B** Follow these steps to create a classic column

**C** Complete the base of the tower

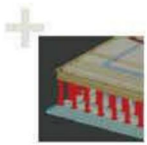


**02 Model a column** Begin by creating a cylinder and convert it to a poly; we can then modify this by adding a series of insets, bevels and extrusions, roughing out the detail along the way. We'll then add TurboSmooth, Symmetry and 2x2 FFD modifiers to finish the column **B**.



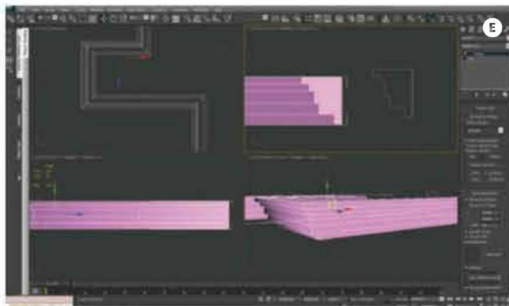
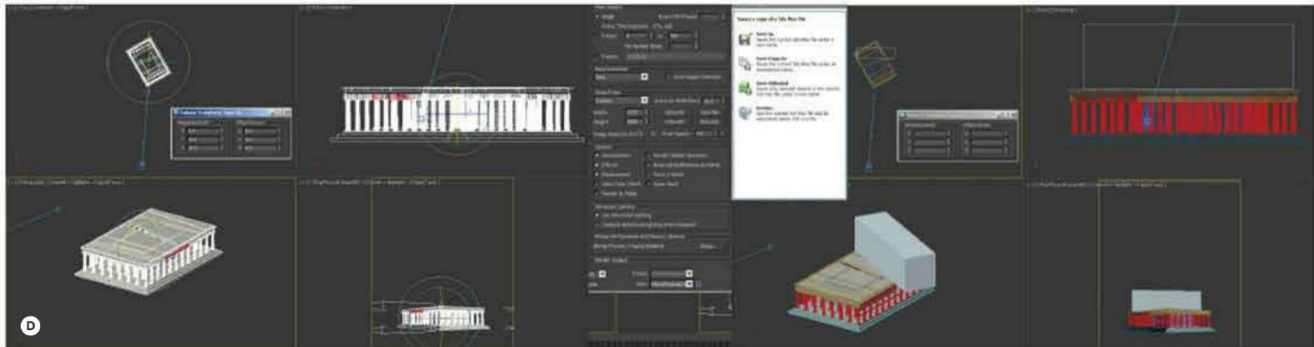
**03 Finish the base** First we array the column that we just created, then create a box for the base, convert it to a poly and extrude faces for the steps. We'll then extrude some splines to create a centre wall. Next, create and modify boxes to create the lintels. To finish up, use a Spline and Sweep modifier for the top section of the level **C**.





## Manage your scenes

Keep order with multiple files in large scenes



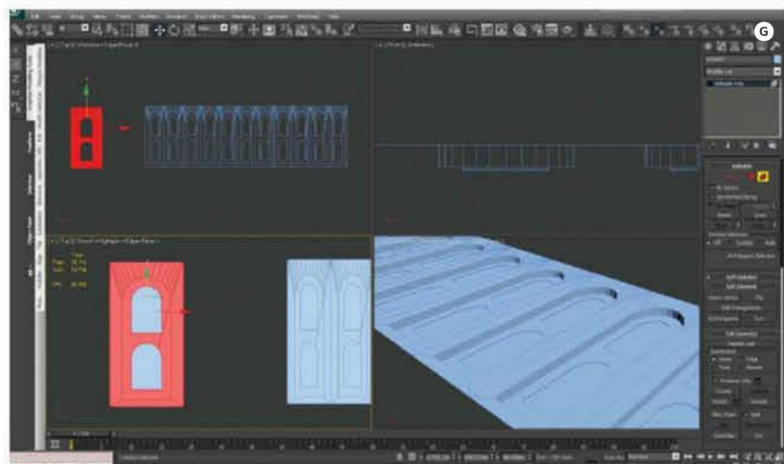
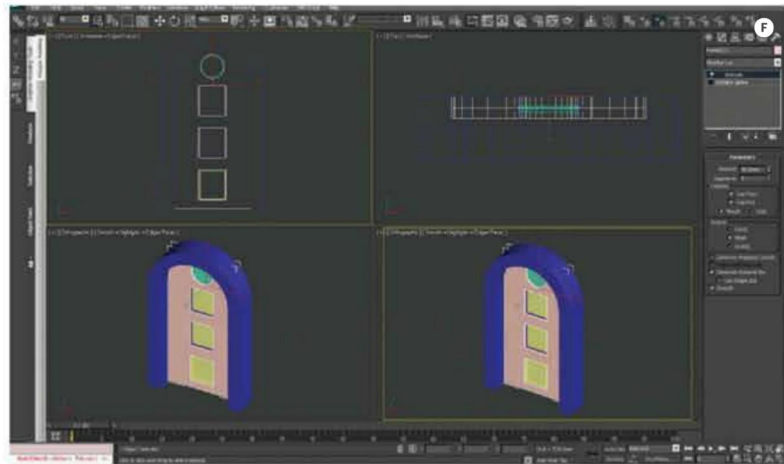
**04 Set up the working file** We want to create a working file to build the tower. We'll first place a camera in the scene so we can start on the composition. Once we place it, we can set the Output Size and then work within the composition. You can now save this file as your working file. Create a placeholder box for scale and size, then hit Save Selected and use that simple geometry as a guide for our next building **05**.

**05 Shape a custom cornice** Create a series of rectangles in the front viewport: one large and several smaller ones. Now convert them to splines. We are going to subtract the smaller shapes from the larger one to create a cornice profile. Once we have them lined up, attach them all in the spline sub-object mode, then trim out the unwanted parts. Now select all the vertices and weld them together. Draw a spline and put a Sweep modifier on it. You can then pick the Custom Shape tab and select your cornice profile **06**.

**06 Create a custom door** We start with splines that we attach together, then trim out the excess to create the general shape. Now we select the vertex and weld the open points together. We can now outline the spline, as well as make a clone. The outline spline becomes the frame and the original clone becomes the door. Add an Edit Poly modifier, extrude the face and add a loop. We can now extrude the edge and align the vertices. Go to the back side and delete the back faces **07**.

## Manage multiple files and stay organised

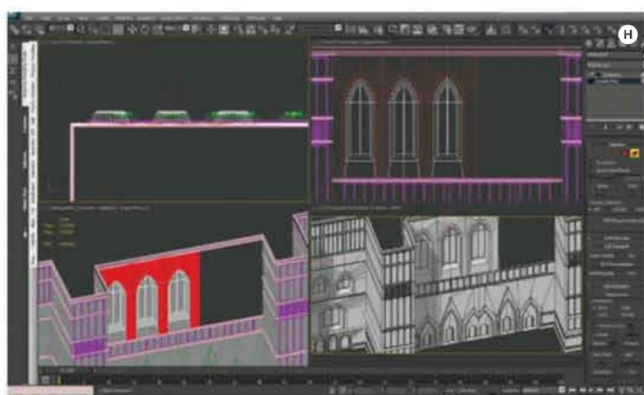
It's good practice to be as precise as possible when creating your models. This can be achieved by snapping to vertices, or creating shapes from lines or loops in your model. I find combining box modelling with spline modelling produces some great results in arch-vis work.



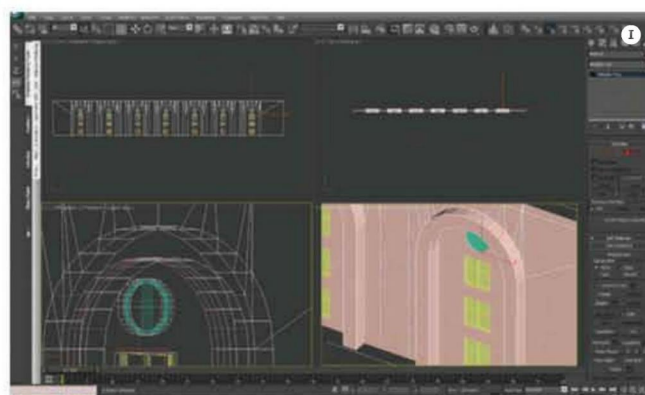
**07 Model the Basilica** Start by using the splines to create the windows. Once we attach them together and add an Edit Poly modifier we can then extrude the lines and polys like we've done in previous steps to create a portion of the wall. We can then make multiple copies of the wall section, attach them together and add a PathDeform modifier. Create a spline and use this to shape the wall **08**.

- 01** Make the working file and build reference geometry
- 02** A step-by-step breakdown of creating a custom door
- 03** Follow these steps to create custom profiles
- 04** Use splines to model your windows

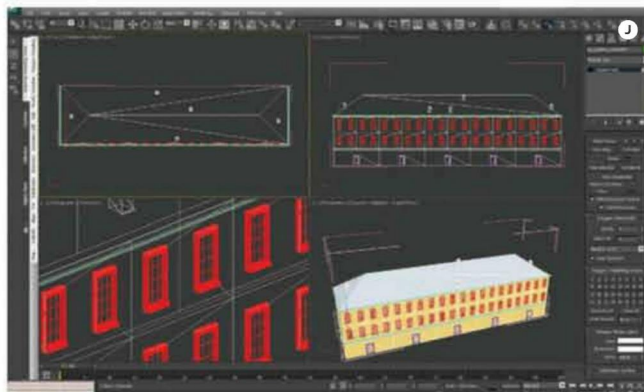




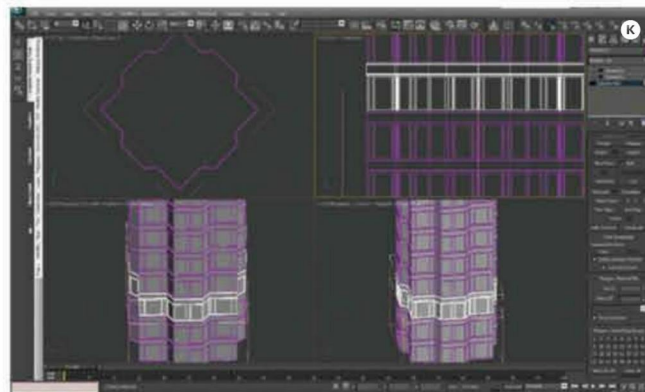
**08 Build a cathedral** Now we'll use all the techniques that we have covered in the previous steps to create our cathedral level. Start with the doors and the windows using splines and then add the Edit Poly modifier. Create a few different sizes and create the building footprint that we will use for wall placement and cornice sweeps. As we add each wall section, they can be placed and attached together following the footprint **08**.



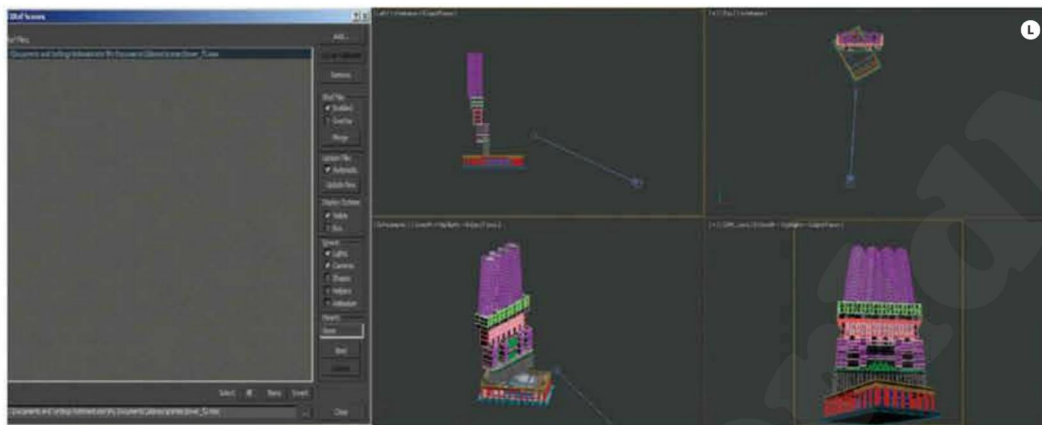
**09 The Palazzo Medici Riccardi** We'll get the general height and size of the building from the imported blocks that we're creating in our working tower file. We can now create the base, starting with the doors. The second and the third floor of this level are identical, so all we need to do is create one floor and copy it. We use the same procedure and start by creating the windows. Once we have the walls together we can group them and add a Symmetry modifier **09**.



**10 Bedford Square** We can now build this simple structure with the Building Generator script (supplied, or go to [tinyurl.com/buildinggen](http://tinyurl.com/buildinggen)). The generator is a powerful script that is node-based. The buildings are created around a spline, which enables you to add your own geometry to the building as well as set material IDs for later use. You can preview all your settings before you create the structure to get a better idea of how it will look **10**.



**11 The Reliance Building** We can create this by making a series of copies and using Symmetry modifiers. Start out with a box and divide it into three parts. Bevel the centre panel then divide the smaller panes and bevel them also. Create a mullion line on the top section and copy the detail face around to create all four walls. After that, copy the floor vertically to create one building. We can then add the Symmetry modifier twice **11**.



**12 Set up the ground file** Select and Save Select your working camera in your tower\_working file. Now open a new file and name it 'ground\_working'. We'll now import our working camera into the file we just created. We can externally reference the tower\_final file while preparing the ground plane **12**.

- 01** Create wall sections to form a cathedral-style section
- 02** A quick example of the Building Generator script
- 03** Make copies of the tower using the Symmetry modifier
- 04** Organise files into different sets to manage very large scenes

## Non-destructive workflow

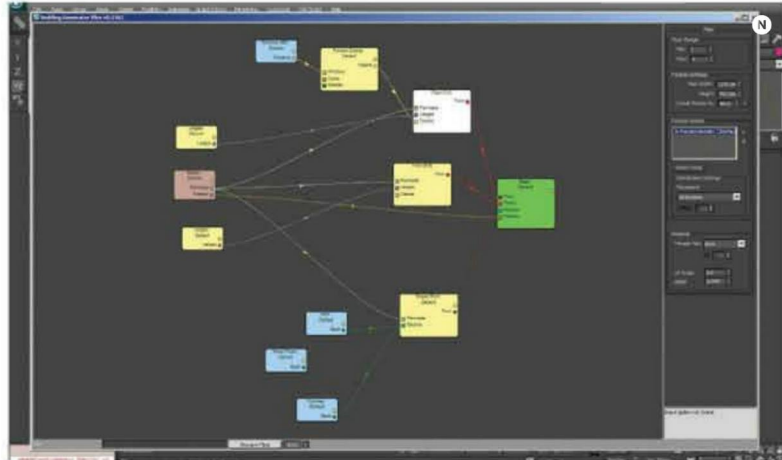
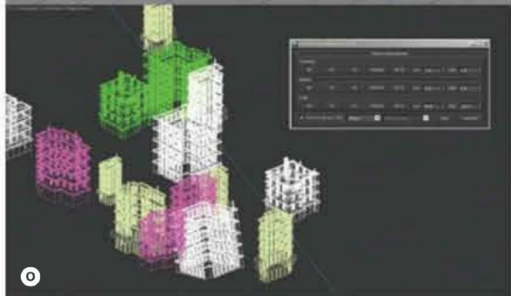
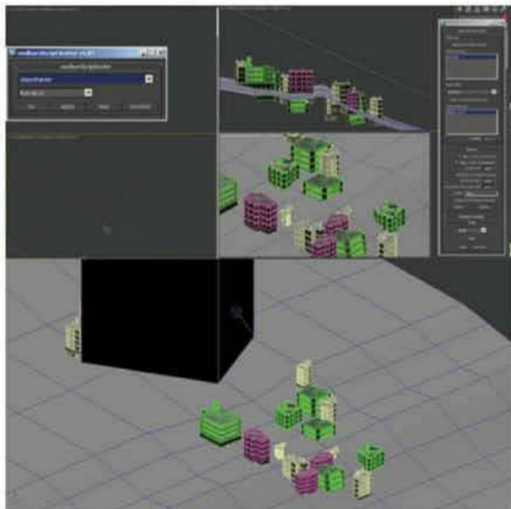
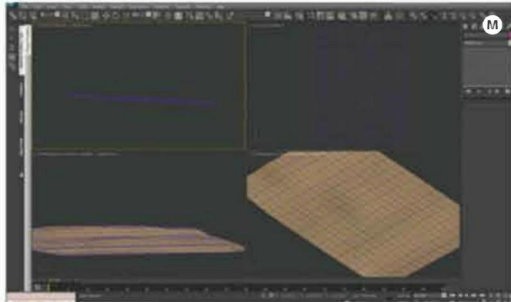
When creating a scene or an environment I like to work with different files that are 'XRef-ed' together. This way I can work non-destructively as well as save on the RAM when rendering. When everything is ready, I can merge all the files together into one master. I usually do this at the end when I am happy with materials, camera and object placement. You can do a lot of proxy-clean conversion to once again save your vital RAM.





## Establish your environment

Create surroundings for the tower and organise the working files



**13 Shape the ground** Create a plane and give it some segments. Now convert the plane into a poly and adjust the vertex in the cross section. Make a general ground profile, select the polys outside of the tower and add a Tessellate modifier. Now add a Noise modifier for some added detail. To bring in further detail we can deform the surface with the Poly brush **M**.

**14 Make multiple buildings** With the Building Generator scripts you can save and load different buildings that you create. We do this by right-clicking in the main window to bring up the Load list. This list can be a single building or a folder of buildings that you've created. This is a nice way of separating different buildings with similar styles – say detached houses or commercial low-rises. By creating these lists or libraries you have the ability to create lots of buildings quickly **N**.

**15 Scatter the buildings** We now need to load the Soulburn script: Object Painter. This script helps us scatter our objects over the ground quite quickly. It also gives us the opportunity to randomise the buildings being scattered. Once the buildings are in a relatively pleasing setup, we can randomise one more time with the Transform Randomizer script **O**.

**M** With some simple poly modelling and modifiers you can create a dynamic ground plane for your environment

**N** The Building Generator script is node-based, making simple building creations quick to make

**O** Scatter the buildings using the Soulburn scripts

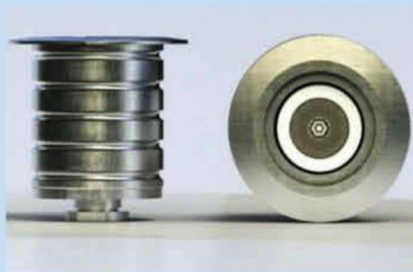
## Admire your model

Now that we've completed the parts of our arch-vis model, let's make some quick test renders. Creating smaller working files, simple materials and a lighting system are extremely important in a workflow. Quick renders can check if things are out of scale or don't look right. We can slowly merge files and name selection sets or create layers for further organisation. All these steps are very important to your workflow when working with larger environments with multiple elements.

## Artist Showcase

### Chris Kowal

Based in Vancouver, Canada, Chris works as a digital illustrator, model-maker, 3D instructor and fine artist. He sees 3D primarily as a communication tool to explore in my professional life, classroom teaching and studio practice. He specialises in designing architecture and often incorporates themes of romanticism, nostalgia in his works.



**Aluminium Study** 3ds Max, V-Ray (2012)

This is an experiment from when Chris was working on refining his studio light setup, as well as his metal material work



**Bookshelf** 3ds Max, V-Ray (2012)

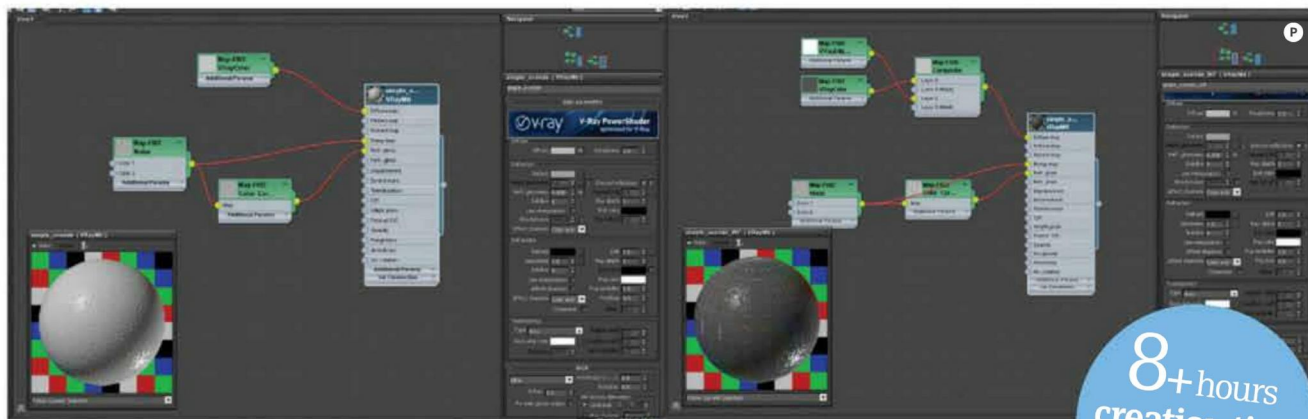
This is just one variation of a bookcase design showcasing how photoreal work can be applied to practical solutions





# Make some test renders

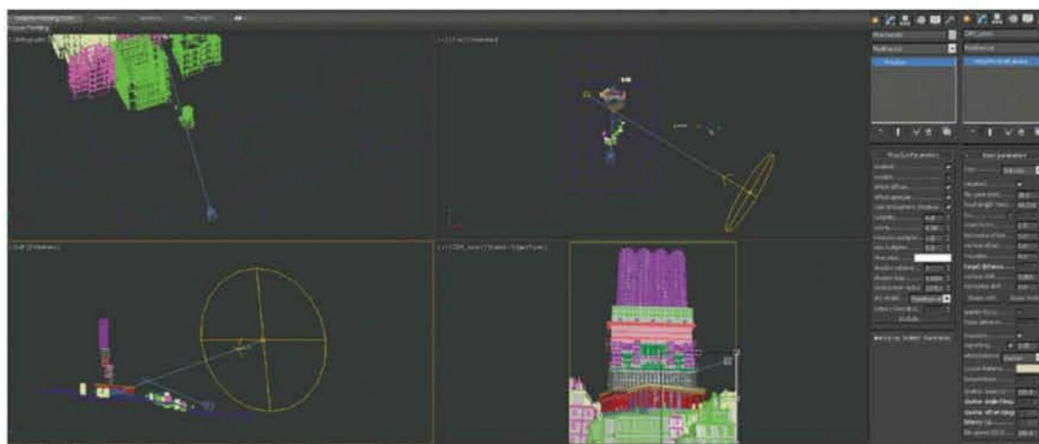
Create a file with a simple material override and a lighting system



**16 Begin testing** Once we start modelling and working with our models, it's best to set up an Override material. Use this in combination with a simple lighting setup to get a better understanding of the modelling work. Start with a V-Ray material

and place a V-Ray Color map in the Diffuse slot. Then add some reflection and check Fresnel. You can also add some noise to the Bump map to give the surface some texture. Now this can be placed into the Override tab in the Render Editor ①.

**8+ hours**  
creation time  
Resolution:  
6,000 pixels



## 17 Clay render setup

Use a V-RaySun and V-RayPhysicalCamera setup. This simple setup is great to check the final composition. Place a V-RaySun/Sky into the scene and place a V-RayPhysicalCamera. We can adjust the size and camera settings to create a range of different looks ②.

① Here is a breakdown of the material tree

② With the tower and environment created we are now ready to add some materials and lighting

## Experiment

There are so many steps involved in creating arch-vis work that I encourage you to experiment with your own processes, while incorporating essential scene management habits into your work. There are so many ways for you to discover arch vis - and not just in its more conventional forms. This discovery can manifest itself in many ways, such as the scale of the buildings and different combinations that create fantastic arch-vis worlds!



# Back to basics

Get your animating toes wet: dip into the Graph Editor and other tools to make your ball bounce

With the Disc

- Maya scene files
- Video reference
- Final animation render

Maya

# Learn to animate a bouncing ball

“Jahirul Amin guides us through the essential first steps of animation: the bouncing ball”



**This tutorial is going to be the first in a series that will take you through the first steps of animating in CG.** We'll be using

Maya but the same principles and techniques can easily be transferred to whichever package you prefer. To begin, this month we'll focus primarily on setting some foundations: introducing tools such as the Graph Editor, Dope Sheet and Motion Trails. We'll then go through a

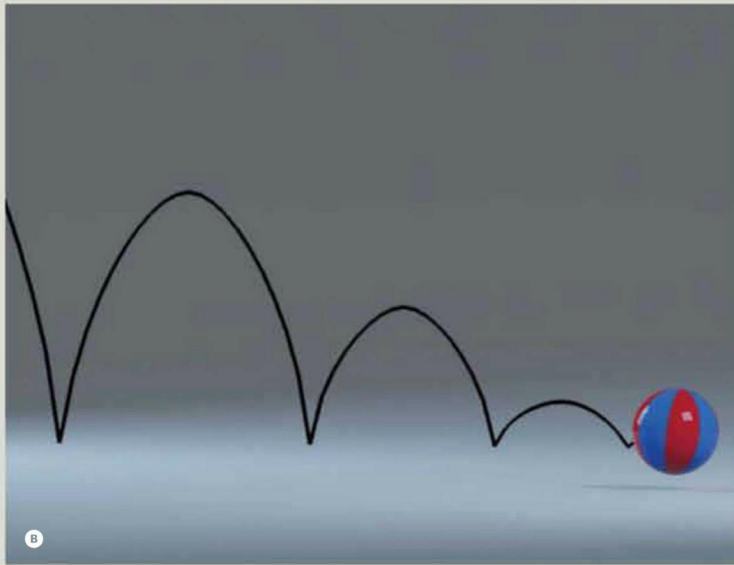
workflow, using these tools to animate a bouncing ball.

The main outcome of this first tutorial is an animated bouncing ball. It's an exercise that may initially seem simple but is an invaluable first step. The bouncing ball demands an adherence to some of the key principles of animation, namely timing, spacing, weight, squash and stretch. Also, the motion created by the ball may be seen as a somewhat primitive precursor to a

moving character, making the bouncing ball exercise a useful preparation for a walk cycle. Finally, the exercise will help you get used to some of the animation tools in Maya such as those mentioned above.

As with all animation, getting good reference is the essential first step. Watch how different kinds of balls drop and bounce, compare the behaviour of the different balls and see Newton's laws of motion in action. Record the balls bouncing



Join the community at [www.3dartistonline.com](http://www.3dartistonline.com)

watch them on repeat. You can then take your footage into the fabulous and utterly free Kinovea ([www.kinovea.org](http://www.kinovea.org)), break it down and draw over it to get a feeling for the key poses, timing, spacing, the way the balls lose energy and so on.

It's essential to note that while observing reality is vital, it's not absolute reality that you'll need to re-create in CG. Bizarrely, a totally faithful mimicry of reality actually looks unreal. You'll need to push the poses, as what's imperative is that the movement looks and feels right, not that it's mathematically correct.

I personally find that before beginning to animate in CG, planning on paper really helps. The organic nature of paper and pencil lends you complete freedom to plan and explore ideas. The rig, however well created, will always be something that you will have to work around to maximise its potential. However, this can feel like a restriction on your creative freedom.

Then it's time to take it all into Maya – or your preferred package – and get animating in CG. Regarding a general approach to animating, I like to first block in the 'Golden Poses', making sure that the poses are clear and readable for the audience. I then move on to getting the timing right. Finally I refine it again and again.

As this exercise uses a ball, rather than a character with arms and legs, we'll break down the process into first working on the translation of the ball, then the rotation, and lastly adding squash and stretch. Squash and stretch, by the way, is something that can be overused; it is important that the audience feels it as opposed to actually seeing it.

To animate the bouncing ball, we're going to keep our animation curves in Spline

mode, though Clamped is also fine. The reason for this is that we need to see the transitions from pose to pose and the arcs that are created. Having smooth, clean arcs adds fluidity and keeps things moving as naturally as possible.

As mentioned before, one of the tools that you'll meet during the next ten steps is the Graph Editor. This tool is a visual representation of each keyed attribute and the interpolation between keyframes, and though it may at first seem intimidatingly complex, get to know it and it'll be your best friend for life. The Graph Editor enables you to do a million and one things from shifting keyframes to cleaning up motion-capture data. It enables you to do these tasks in often the most efficient way possible, so it's well worth getting past its perhaps distractingly technical appearance to find its inner charm.

A second tool we'll look at is the Dope Sheet, which would be called the Exposure Sheet in 2D. It's a device for shifting keys around to rework timing so it comes in very handy when blocking out a shot.

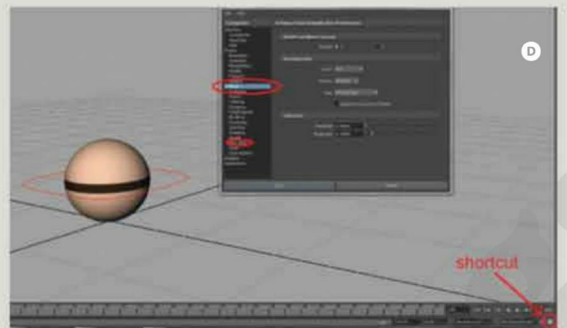
For this exercise I've provided a ball rig. It's pretty simple, but you'll find it will be able to do what you need it to do. There's no sense complicating a rig; it needs to be fit for purpose. I recommend having a quick play around with the rig to get comfortable with it before beginning the exercise.

As a last point before we get going, I would really advise you get feedback on how your animation is looking throughout the process. A fresh pair of eyes can help you to identify areas that may need reworking. If no fresh eyes are available, leave your work for a while, refresh your own eyes, and then compare your work again with your all-important reference.



## Use Newton's Laws of Motion for animating CG

An object at rest will stay at rest and a moving object will keep on moving in the same direction and at the same speed, unless something comes along to change that uniformity.  $F = ma$ , or in other words, when a force acts on a mass, acceleration is produced. The degree of that acceleration will depend first on the magnitude of the force that hits the object, and second on the mass of the object being hit. For every action there is an equal and opposite reaction.



## Let the balls bounce!

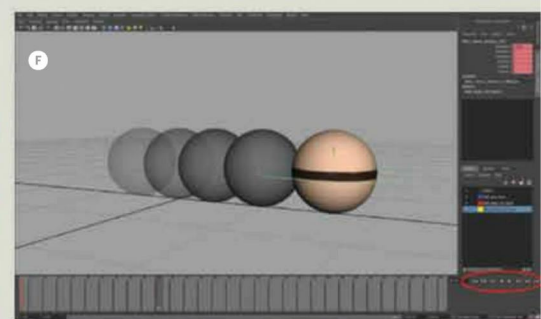
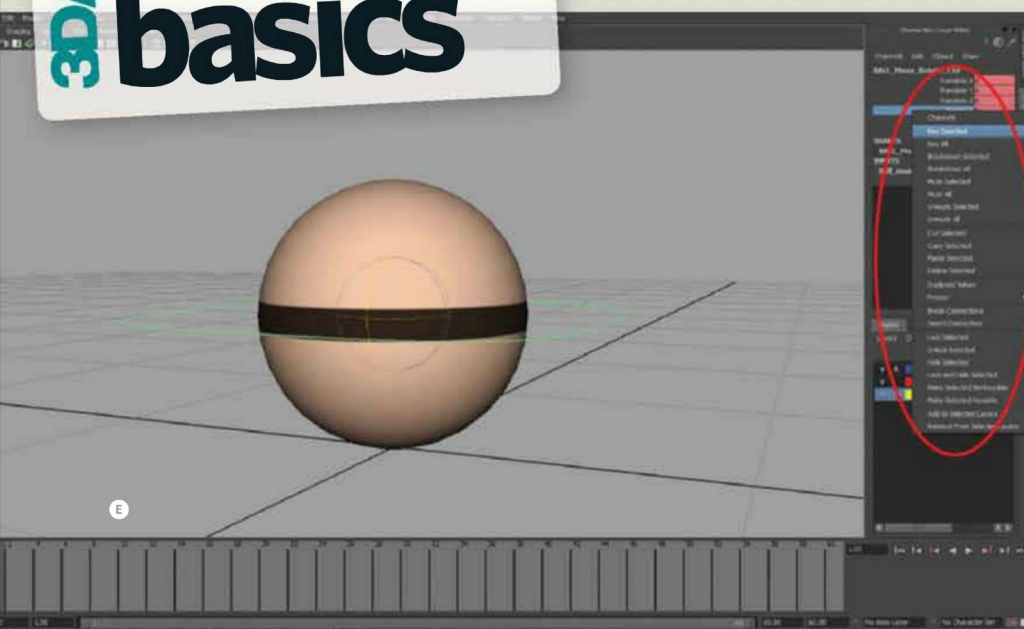
### 01 Animation preferences

Open up the scene file 'bb\_start.ma' and go to Window>Settings/Preferences>Preferences. In the Preferences panel highlight Settings and change the Time to PAL (25 fps). I work primarily in PAL but you will need to adjust your settings in accordance with your regional requirements. Next highlight Animation and change the Default in tangent and Default out tangent both to Spline. Next highlight Time Slider and change the Playback Speed to Real-time [25 fps]. When changing your animation time units, you will find that Maya will either compress or expand your current Playback Range, hence the importance of checking these settings before you start animating. Set the Start Time of your Playback Range to 1 and the End Time to 80 **D**.

- A** A final render of the ball bouncing
- B** Arcs are beautiful, so try as much as you can to incorporate them into your work
- C** A screenshot of my referencing process using the free Kinovea
- D** Make sure your ball animation preferences are set accordingly as your first priority



# 3DArtist Back to basics



## + 02 Set the keys

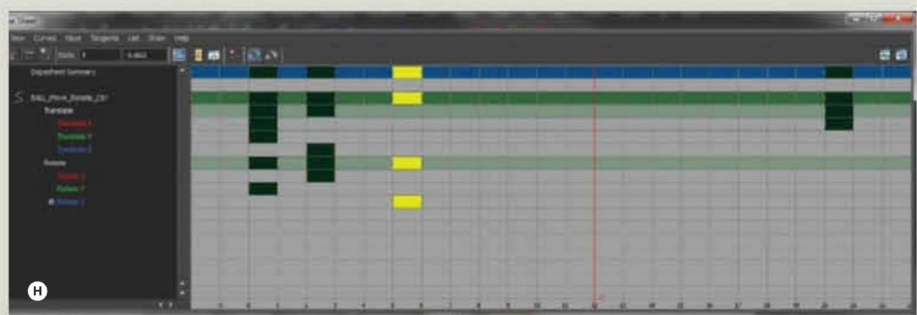
When setting keys it's important first to move to your desired frame, move/rotate the object and then set the key. To set a key, you can hit S on your keyboard. This will put a key on all the attributes in your Channel Box as well as a notch on the Timeline. There may also be occasions where we would only like to key specific channels. To do this, we can highlight an attribute in the Channel Box, Ctrl/right-click it and pick Key Selected. We can also key all the Translate attributes solely together by hitting Shift+W. The same works for Shift+E for the Rotate channels and Shift+R for the Scale channels **E**.

## 03 Playback settings

Now, on the bottom-left of the screen, you will see the Playback controls. I find it more efficient to use shortcuts, so here are some useful ones. To play your animation you can hit Opt/Alt+V. If you place your mouse pointer in the Viewport, you can also scrub through the Timeline by holding down the K key on the keyboard and click-and-dragging in the Viewport. Holding down Opt/Alt and pressing the comma or full-stop on the keyboard will also enable you to scrub frame by frame. Another useful shortcut is to go from keyframe to keyframe. To do this, make sure the object has some keys on it and press the comma or full-stop on your keyboard **F**.

## 04 The Graph Editor

For this stage it's essential that you have a third mouse button enabled. To open up the Graph Editor, go to Window>Animation



Editors>Graph Editor. Navigation in the Graph Editor is the same as in the 3D Viewports. Use Opt/Alt and the third mouse button to pan, then hit Opt/Alt again and Ctrl/right-click to zoom in and out. On the left you will see the object you currently have selected and all the channels that have keys on them. Running up the vertical we have the value of the attributes, while the horizontal displays the time. Make sure you have the Move tool activated and select a key. By clicking the third mouse button and dragging you can reposition that key in both value and time. You will also notice that two tangent handles are editable for each key, enabling you to easily control the spacing and behaviour of the movement while preserving your timing **G**.

## 05 The Dope Sheet

Open up the Dope Sheet by going to Window>Animation Editors>Dope Sheet. Again, navigating in here is the same as the Graph Editor and the 3D Viewports. With the Move tool activated, you can highlight any of the keys, and with the third (or middle) mouse button drag them to rework

the timing. You can move keys on individual channels as well as globally by editing the top-most notch. By holding a Ctrl/right-click over a key, we have another heap of editing options such as Copy, Cut and Paste. To save you having to drop down to the Timeline to play or scrub through your animation, you can hold down K and drag in both the Dope Sheet and the Graph Editor for playback **H**.

## Even timing

When blocking out a shot, I always time out the poses in multiples of two frames. This enables me to have the ability to go in and add a breakdown pose bang in the middle of my two key poses. For example, key-pose 1 will be on frame 1 and key-pose 2 will be on frame 17. They are 16 frames apart so I can go in and add a breakdown pose at frame 9. We can then go in and add two further poses between frames 1 and 9 (frame 5) and frame 9 and 17 (frame 13). When it gets to the final clean-up of the animation, the timing may alter, but I find this a good start to the initial blocking stage.

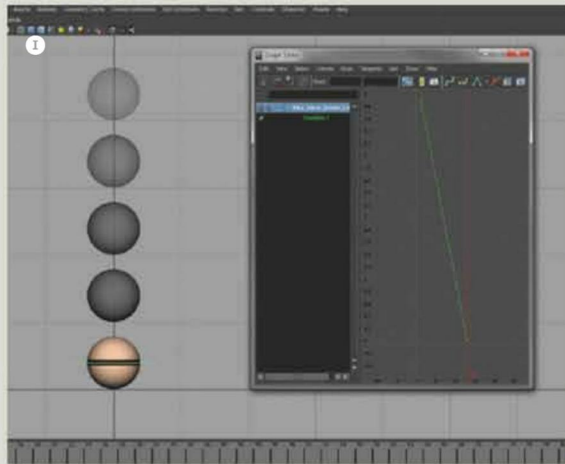
**E** Setting keys on all the individual channels enables you to have less clutter in the Graph Editor

**F** The Playback controls are as you'd expect, but try to use the shortcuts to be more efficient

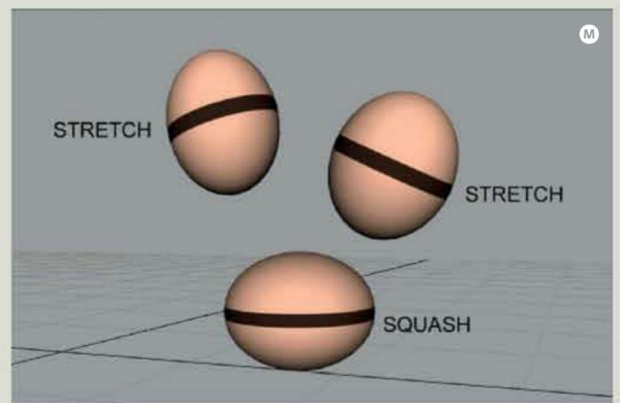
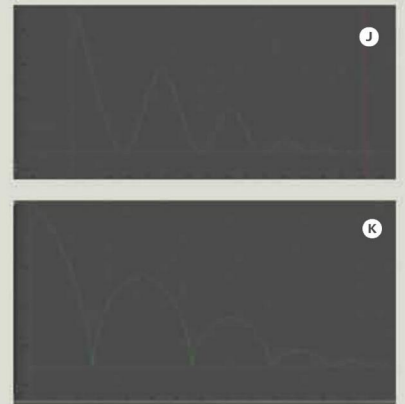
**G** The Graph Editor will be your best friend, so get used to using it

**H** For a quick tool to shuffle around your keys, use the Dope Sheet



Join the community at [www.3dartistonline.com](http://www.3dartistonline.com)

“For this exercise I’ve provided a ball rig. It’s pretty simple, but you’ll find it will be able to do what you need it to do”



## 06 Let's get bouncing!

Begin by making sure there are no keys on the ball. If there are, you can either delete them in the Graph Editor or hold down Shift and drag in the Timeline to create a red selection window. You can then hold down a Ctrl/right-click and pick Delete. We'll start by working on the up and down movement of the ball. Go to frame 1 and translate the BALL\_Move\_Rotate\_Ctrl around four units up in the Y channel. Highlight the Translate Y in the Channel Box and key just that channel. Then go to frame 13 and put a value of 0 in the Translate Y **I**.

## 07 Include more bounces

Next move to frame 23 and translate the ball up in the Y channel to a value of 2.3 and back to 0 at frame 33. Continue to do this until you have quite a few bounces. For each bounce, I make sure that it takes the same amount of frames to go up as it does to come down. This will provide bounces that are even and arcs that are clean. I also reduce the amount of frames that it takes for each bounce by two, to give the feeling that upon each contact the ball is losing energy. When you have all your bounces, your animation will look pretty weightless. If you open up the Graph Editor you'll see that the curve looks a little like the Alps mountain range, but you should also be

able to see how this curve relates to our keyframes in the Viewport **J**.

## 08 Apply weight

In the Graph Editor, select all the keys on the curve and go to Keys>Free Tangent Weight. Next select all the keys where the ball hits the ground and go to Keys>Break Tangents. This will enable us to manipulate one side of the tangents without affecting the other. Now edit the shape of the curve, so as we approach the frame where the ball makes contact, we get a sharper drop. By doing this we are changing the spacing to give us more weight and impact, and our mountain range now looks more like the Loch Ness Monster. You can also create a motion trail to check your arcs: select the BALL\_Move\_Rotate\_Ctrl and go to Animate>Create Motion Trail (Options), set the Time range to Time Slider and the Draw style to Line. If you're using Maya 2012 or 2013, you can also use the Editable Motion Trails tool, which is like having the Graph Editor in the 3D Viewport **K**.

## 09 Include rotation

Let's now get this ball moving in the horizontal axis as well as adding some rotation to it. Go to frame 1 and set a key on the Translate X channel for BALL\_Move\_Rotate\_Ctrl. Go to the last frame of your

animation, translate the ball over in the X and set another key. Play back the animation to check that you are happy with the distance it travels. To add rotation, using the same control rotate the ball in the Z axis. For the first few bounces, I know that I will be adding a small amount of squash and stretch later so I make sure that the ball lands on its poles. This enables me to get clean deformation without the texture stretching in an odd manner. You can also add some subtle roll back on the ball so that it feels slightly more natural **L**.

## 10 Squash and stretch

Reveal the Ball\_SandS\_ctrl\_layer to make the Squash and Stretch controls selectable. Add some squash on the first few contact poses by pushing and pulling the controls either side of the ball. Remember not to go too wild with this as it can be easily overdone. Then go through and add some stretch as the ball goes in and out of the contact poses. When the ball is at the apex of each bounce, there should be no squash and stretch acting upon it, so make sure the controls all have a value of zero at this point. As the ball stretches, you also want to make sure that it is doing it along the arc. Use the BALL\_SandS\_Rotate\_Ctrl to help orient the controls to do this **M**.

**I** Add the first two poses for our bounce animation

**J** This curve shows the result of our key settings

**K** Add more impact by editing the different tangents

**L** Apply some rotation and alter the motion trails to view the arcs

**M** Some subtle squash and stretch can always add more to your animation when it's required



# Masterclass

Craig A Clark is a professional hard-surface modeller. Here he presents a workflow consisting of LightWave, KeyShot Pro and Bunkspeed PRO

FREE TRIALS

KEYSHOT PRO:  
keyshot.com/try

BUNKSPEED PRO:  
bunkspeed.com/  
software/trypro

With the Disc

- RolexYachtmasterIIMaterials (LWO files)
- Tutorial screenshots

LightWave, KeyShot Pro, Bunkspeed PRO

## Model and render a photorealistic watch

Final render of the Rolex Yacht-Master II in 24-carat gold

“ This masterclass will introduce a workflow to help you model and render a Rolex wristwatch ”



**This tutorial will focus on the production of a photorealistic render of a wristwatch.**

Workflow is always of importance to avoid back-tracking and repeating steps as much as possible. Part of what will be specifically looked at is the process of completing the work with the best tools for the job. In this case we'll use LightWave for modelling because it's a rock-solid polygon modeller. Breaking out of a simple LightWave workflow – even though it has a good renderer (better now than it's ever been) – we'll step into other software to render.

Why move out of LightWave, you ask? Well, as simplicity isn't always a good reason to limit your options, it's important to understand all the tools you have at your disposal, and when to use them.

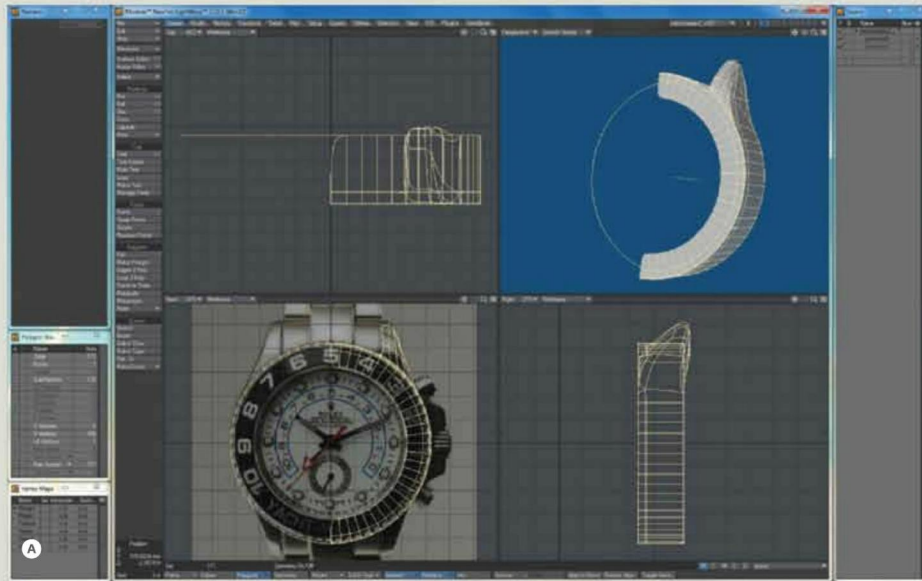
As well as LightWave, I have licences for Luxion's KeyShot Pro and the Bunkspeed PRO Suite. You can grab trials for these from the respective websites: <http://keyshot.com/try> and [www.bunkspeed.com/software/trypro](http://www.bunkspeed.com/software/trypro). Both are very capable and very fast rendering solutions, which for many projects provide a much faster turnaround than LightWave alone.

Taking that into account, the basic workflow we'll cover is the setting up of reference images and the modelling of the watch. Modelling will include the assigning of surfaces ready for shading. This requires some consideration with regard to the model going into the third-party renderers. This is because the surface assignments will dictate how the model is editable within the other renderers. There is also some UV mapping to do.

Ambient occlusion render pass of the Rolex Yacht-Master II







Once all the work is done in LightWave's Modeler, our workflow will split. For continuing work in LightWave, we will start working on shaders, which may mean starting by loading up a library preset or starting from scratch. There are texture maps to create for the watch face as well.

For rendering in KeyShot or Bunspeed, we have a little extra work to do. Neither renderer will import LightWave LWO files, so we need to translate to a compatible format. This can be either OBJ, FBX, or Collada (Bunspeed only). My personal experience with LightWave is that the FBX exporting works well and will export animations with reasonable success, though some parenting can cause issues along with the use of sliders. LightWave's OBJ exporting isn't great and my preference is to use Deep Exploration. This enables the exporting of an entire scene as an OBJ, which seems to be the best compromise for most situations.

Whichever method you use, it's worth pointing out that it represents pretty much the end of any LightWave input to the end result. This means you need to be really certain that your modelling work is finished, that all your surfaces are correctly assigned and all required UV sets have been created. Failure to do so can see you needing to go back to LightWave to do further work, and effectively write off a lot of time spent working on the model in KeyShot or Bunspeed. Not only that but you'll also have to spend time copying and pasting shaders onto the newly re-imported assets. This isn't the end of the world, but it can become frustrating quite quickly.

Once your model is imported into KeyShot or Bunspeed, the workflow from

**A** With the backdrop set up we can begin the basic blocking-in process

**B** Modelling is completed and geometry frozen for rendering and exporting

this point on is pretty much the same. Although the shader configurations are a little different, there are distinct parallels between them.

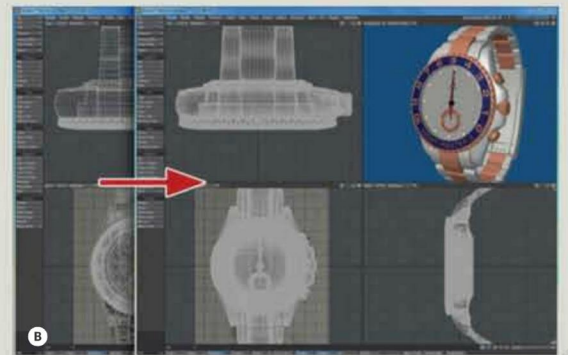
In common with all the options covered here, you will spend a fair amount of time tweaking and rendering. LightWave now has VPR, which is a real-time updating render preview. This is a real help when working with shaders and is very similar to both the other renderers, though they are much faster and more responsive.

A workflow consideration that might not apply to everyone is compatibility with CAD systems. LightWave can handle OBJ, Collada, and FBX, but these don't directly help with CAD. The other two go a step further. Bunspeed offers a free plug-in for use with various other software systems, with Pro/E being one of the main ones in CAD terms, but it requires a licensed copy of Pro/E – and not everyone will have a licence for it. KeyShot also has the native ability to load Pro/E files, keeping all the sub components and hierarchies intact. This is a very nice tool to have at our disposal, and a big consideration if you deal with CAD assets a lot.

Having looked at the workflow considerations, let's check out an overview of creating the asset to be rendered, and then the processes involved in rendering it in three different renderers.

## It's all about the materials you use

The thing with CGI is that no single aspect is going to hold up on its own. Creating a stunning model is part of the requirement, but no matter how good your model is, on its own it will have little impact beyond showing you can model well. Dress it in poor textures and shaders and it'll render up being a disappointing mess. More often than not there is no complete shortcut to shaders. You can build a library, but often they will be to a greater or lesser degree shot-specific and need tweaking each time you use them.



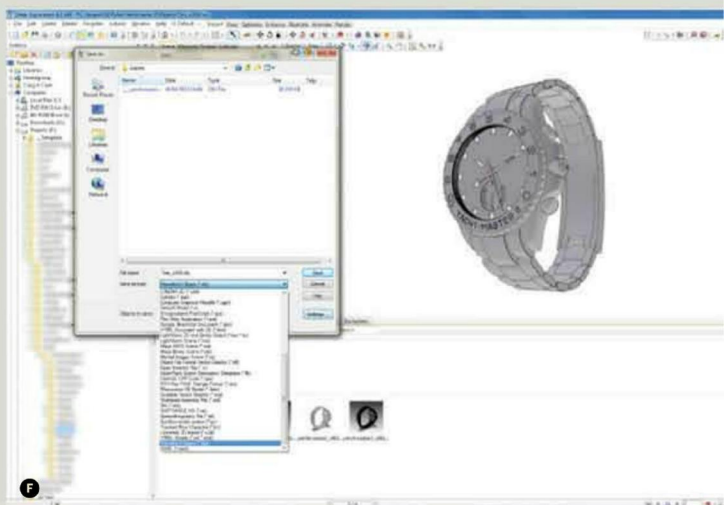
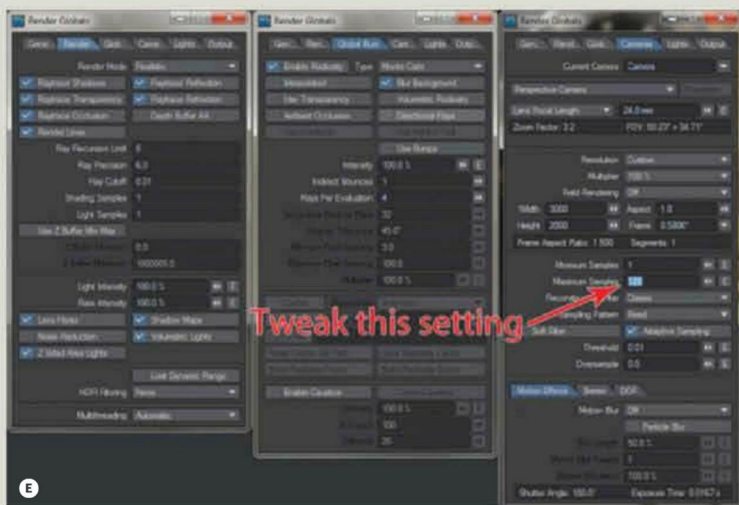
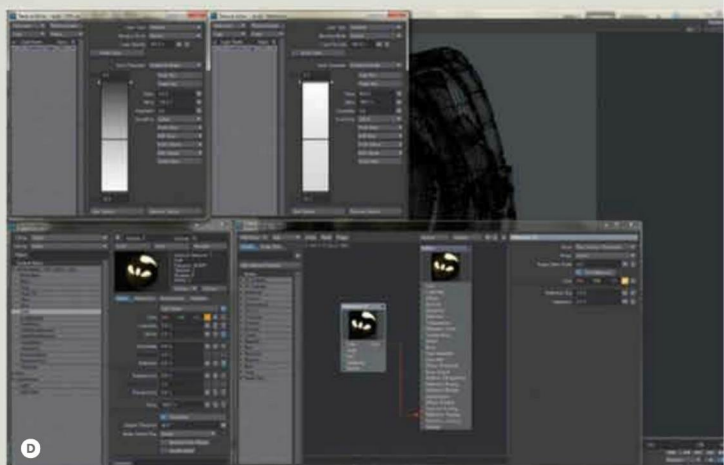
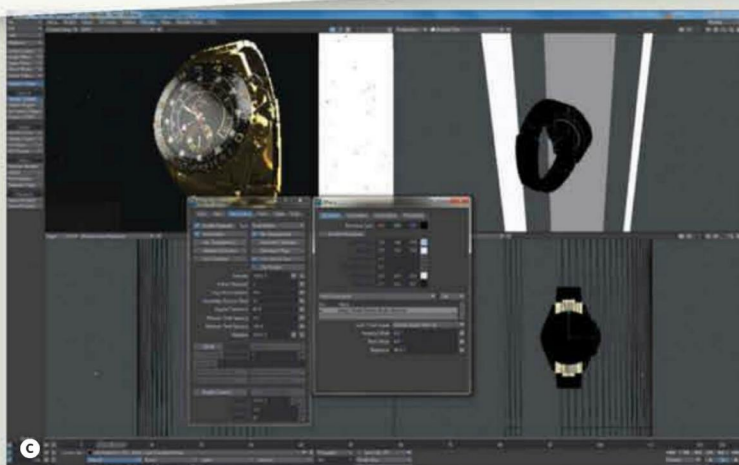
## 01 Prepare to model

First you need to find a suitable reference to use as a basis for the basic modelling process. In an ideal world we would have side and front views of a wristwatch. Although decent-enough front views are easy to find from a Google Images search, I couldn't find a decent side view for this Rolex. My reference is plentiful enough for the job, though, so I can gauge the depth of the watch – so it's not the end of the world. With the front view set as the backdrop, basic model blocking can now begin **A**.

## 02 Freeze the model

We have quite a complex watch to model, so for rendering in close, the SubD levels need to be quite high. I find even for rendering in LightWave it can be beneficial to freeze the model, as it saves LightWave having to freeze the model each time at the point of rendering. Not only that, but for rendering in KeyShot or Bunspeed PRO, the model needs to be frozen anyway. Just be very sure that you have completed all modelling and UV mapping **B**.





### 03 Set up the scene

For this subject matter, a typical scene doesn't need to be complex at all and for the main render featured here, it's not. I have three light cards arranged cylindrically around the watch, which I have set as unseen by radiosity. Their purpose is just for reflections. An HDRI map in the texture environment plug-in provides the lighting. I've used one of Dosch's Chrome Studio maps set to 90% Intensity. However, any with good light and dark contrasts would work well for our purposes **C**.

### 04 Arrange your shaders

The screenshot for this stage shows you the major settings for the 24-carat gold shader. When it comes to shaders I'm still relatively old-school in that my use of nodes is minimal when it can be. Never make it more complicated than it needs to be! In the case of the gold shading, it's not the most complicated thing to do and really comes down to getting the colour right along with the balance of diffuse and reflection. I have provided my full

LightWave shader collection used in this Rolex Yacht-Master II model **D**.

### 05 Render the scene

A few years ago I wouldn't have been tempted to render something like this in LightWave. All the reflections and refractions added to radiosity would have made render times prohibitive. LightWave 11 has made things faster and simpler. All the major rendering-related settings are now in the Render Globals panel. For this scene, shading and light samples can stay at 1. Also, interpolated GI isn't the fastest option, so with it turned off, GI set to Monte Carlo and the RPE set to 4, we're good to go. I usually keep the adaptive threshold at 0.01 for finals. Minimum Samples on the camera are kept low, but maximum samples need tweaking for your scene **E**.

### 06 Export and render

There are several options available for getting geometry out of LightWave and into KeyShot or Bunkspeed PRO. My favoured method is Right Hemisphere's Deep

## KeyShot or Bunkspeed - which one is the best for me?

The thing to remember is that they are only renderers, so in this example neither can replace LightWave completely. There are also some key differences to each that are worth being aware of. First, there is the power for rendering. KeyShot primarily uses your system CPU and RAM. No matter how fancy and high-end your video card is, the most it'll be used for is bloom and vignette effects. Bunkspeed, however, enables you to specify the use of system resources for rendering. It can use your system CPU, your video card GPU, or a hybrid mix of both. This is great but you are restricted by how much memory your video card has.

Exploration. The main reason is that it can read a LightWave scene, including animation, and enable you to export to Collada and FBX. This is great if you want to render an animated sequence outside of LightWave. It also makes it a snap to export any frame of the scene as an OBJ file. I rarely render sequences outside of LightWave, so OBJ is the way I usually go. LightWave will export Collada natively, but for reasons I am not entirely sure of the file sizes are in excess of ten-times the size of those from Deep Exploration **F**.

**C** A simple scene with an HDRI map is all we'll need

**D** Shading in LightWave - try to keep it simple

**E** Major render settings in LightWave grouped together

**F** Using Deep Exploration to export the watch





## 07 Import into either KeyShot or Bunkspeed

On account of their similar product specs and pipelines, there is not a great difference in how you get the model into KeyShot or Bunkspeed. Both offer you options as to how the object will be organised after the import has completed. I find the default options work well in both cases, giving you a separate entity for each material from LightWave. This means it's worth giving consideration to this when surfacing the model in LightWave to avoid restrictions later. If any applied texture maps are placed in the folder with the OBJ file, then both renderers will load the textures in while importing the model **G**.

**G** Import options for KeyShot and Bunkspeed

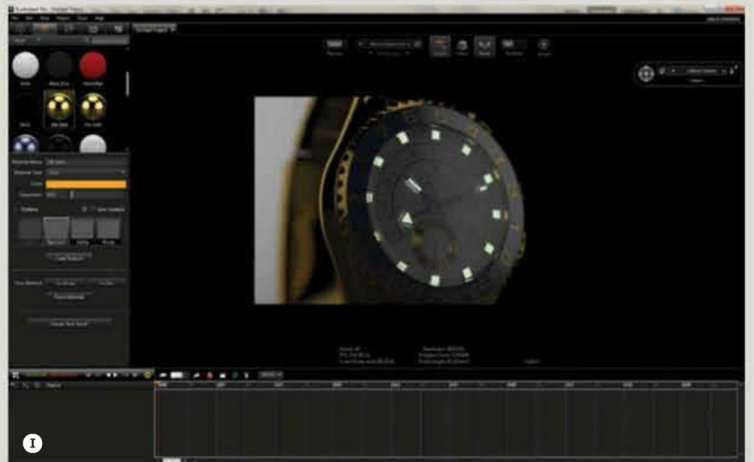


**H**

**H** Working on the model in KeyShot

**I** Working with shaders inside of Bunkspeed

**J** Adding realism through grading



**I**

## 08 Begin shading and rendering in KeyShot

Once the model has imported, shading is where the workflow gets quicker compared to LightWave. You can simply drag and drop materials, environments and backplates from the library right onto the model in the main window. The materials can be tweaked and saved as new library items, but for the major part the presets are great as they are. If you don't require renders in excess of your active screen resolution, you can simply save the preview render. If you need high-resolution output then the offline render can be used for finished output **H**.

## 09 Alternative shading and rendering in Bunkspeed PRO

After importing into Bunkspeed PRO, as with KeyShot, you start by dragging and dropping materials onto your model. The library of supplied materials, environments, and backplates is enough to cover most requirements. Parts of the model can be hidden to gain access to parts otherwise blocked from drag-and-drop operations. For rapid turnarounds without compromising quality, it's a great tool to use, even if it's not exactly inexpensive **I**.

## Pitfalls with LightWave radiosity

When you render using radiosity with LightWave, it's best to throw your assumptions aside. When rendering this scene, using interpolated Final Gather would seem a logical way to go. Interpolation after all is filling in the blanks between defined ranges. However, by switching off Interpolation and using Monte Carlo instead, along with some other tweaks to the settings such as a low RPE setting along with shading and lighting samples, the render times are brought down from in excess of 16 hours to under 3.5 hours. This is worth remembering when using LightWave if you are rendering in it.



## 10 Grade your renders

There is no doubt that the results that can be obtained from LightWave, KeyShot and Bunkspeed are fantastic, but one of the biggest mistakes to make is to assume that the process ends there. I find just adding a little chromatic aberration and noise to the image is enough to take away the clean CGI look. Also adding a colour tint to make it a little less neutral is a great way to achieve this. With the aid of a depth pass, you can also add depth of field, which is pretty crucial for LightWave renders, as rendering DOF in LightWave is still prohibitive of your precious time **J**.



**J**



# Questions & answers

Welcome to the Q&A section where we answer many technical quandaries on the most popular 3D programs, including modo, 3ds Max, V-Ray, Blender and CINEMA 4D

## Need help fast? Join the

The advisors

modo

Richard Yot

[www.itchy-animation.co.uk](http://www.itchy-animation.co.uk)



Richard is the author of *Lighting For Visual Artists* and a professional illustrator with a passion for lighting and staging scenes to effectively tell a story

3ds Max, V-Ray

Dmitry Cheremisin

<http://d33m0n.cghub.com>



Dmitry lives in Kyiv, Ukraine. He's an architect by education, but has been working in the games industry for around four years now as a 3D artist

modo

## Shed light on your characters

“How can I create different moods with lighting?”



This tutorial will show you how to set up various lighting combos

to create different moods for a character.

This kind of lighting is both creative and subjective, so rather than follow a strict recipe I believe it's much more useful to create variations and let you decide which you like best, and why.

Lighting can suggest all sorts of things about a character: it can be menacing, spooky, mysterious, soft, gentle or warm. There are many subjective emotions that can be created with lighting, and these can be exploited to drive emotion and story. Lighting is not purely functional, so experiment with its many attributes to tell your story exactly how you want to.

With the devil character supplied, we are going to explore a few simple variations to demonstrate how these affect the mood of the image and to drive the viewer's perceptions of the character.

To start with we are going to light the character from below with a hard spotlight and then again with some softer, more subtle lighting. In this context, lighting from below might make

a lot of sense: it suggests that the light might be coming from a fire below the character's face. Furthermore, on an emotional level, lighting from below is often associated with horror and spookiness because it is relatively unfamiliar and it reverses the usual positions of the shadows creating a rather alien look. For a devil, all of these attributes make sense and they all serve to drive emotional and story points, giving subtle pointers to the audience as to how they should feel about this character.

Then we'll explore lighting the character predominantly from above, and how this creates a mysterious look by leaving his eyes in shadow. This severs an emotional connection with the viewer because we are always drawn to a character's eyes, so hiding them in shadow can create a discomforting mood. This also seems to suit our devil character rather well, and creates a different feeling from the previous example.

Finally, we'll explore a three-point lighting setup. This does less to create a specific mood but does show off the forms effectively. We might choose to use this less-expressive setup when aiming for a lighter mood, or when the story is best served by less-intense emotional cues. Again, choosing which of these variations is right for your story entirely depends on the mood you want to create.

With the Disc

The devil mesh and texture maps ready for following along with the tutorial are included on the disc



## Blender

**Filippo Veniero**  
[www.ifilgood.it](http://www.ifilgood.it)



Although Filippo has a degree in engineering, he's made graphics his job. He prefers simple objects, focusing on details, ambience and light for realistic results

## CINEMA4D

**Tamas Gyerman**  
[www.wmelone.com/cinemorx](http://www.wmelone.com/cinemorx)



Tamas found C4D when he was 12 years old and it has been his favourite 3D software since. He loves sci-fi scenes and strong contrasting colours

## 3ds Max

**Jamie Gwilliam**  
[www.jamiesjewels.typepad.com](http://www.jamiesjewels.typepad.com)



Jamie uses his blog to share 3ds Max gems that, along with his many motivating presentations, has made him well-known in the world of 3ds Max

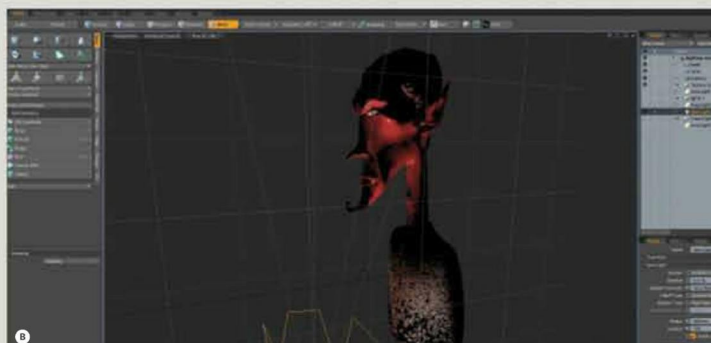
Send us all of your 3D problems and we'll get them sorted. There are four methods to get in touch with our team of expert advisors...

## Share your woes

✉ [3dartist@imagine-publishing.co.uk](mailto:3dartist@imagine-publishing.co.uk)

f [facebook.com/3DArtistMagazine](https://facebook.com/3DArtistMagazine)

t @3DArtist [www.3dartistonline.com](http://www.3dartistonline.com)



### 01 Set up the scene

I'm using modo for this tutorial but any 3D package should be suitable. Open the supplied scene in the package of your choice and enable Global Illumination in your render settings. Next, apply the supplied displacement map (devil\_displacement.tif) to the character model with a Displacement Distance of 2mm. Now you can insert the supplied background image (fire.jpg) as a backdrop and create a dark environment colour for the scene. Your scene is now ready for lighting and you should get results similar to mine **A**.

### 02 Hard lighting from below

To create the hard lighting from below, simply set up a spotlight directly underneath the character's head and point it up towards his face. The light from below will illuminate areas of the face that are normally in shadow, such as the eye sockets beneath the brow, and cast shadows in areas that are normally lit. You will see this immediately creates an unfamiliar look and is therefore very useful when creating an uneasy and unsettling mood **B**.

### 03 Low diffuse lighting

In this variation we are going to create lighting from below once again, but this time

with a large area light or a luminous polygon instead – either will do. This creates much more diffused lighting with softer shadows and highlights so that the dramatic effect and unfamiliarity is softened. There is still an element of spookiness to the lighting, but it's more subtle and the softer lighting reveals more of the character's defining facial features **C**.

### 04 Light from above

To create an entirely different but still very dramatic mood we can light the devil from above by placing a small area light above his head. Position the light carefully so that his eyes fall into shadow and most of his face is in darkness, bar a few areas, such as the tip of his nose. This creates a very moody atmosphere with a strong sense of mystery and tension **D**.

### 05 Three-point lighting

Here we will re-create one of the most popular formulae in CG: the three-point lighting setup. Place one strong light to one side of the devil's face, another weaker light on the opposite side, and a strong rim light above his head. This lighting scheme is far less suggestive than our previous examples, and does little to contribute emotion, but it can be useful in situations where the lighting needs to be far less dramatic **E**.

### 06 Analyse your choices

Now that you have created these four variations, it is time to analyse what you want your lighting to say. Everything depends on the story that you are trying to tell, and what mood you are trying to convey. You can use a subtle lighting scheme if you want the lighting to take a backseat to the action, or a more dramatic one if you really want your lighting to contribute to the story **F**.

## Dos and Don'ts

Creative lighting is an often-neglected area of CG. Many artists give little thought to lighting in general and always repeat the same formulae from one image to the next. This is a missed opportunity, since lighting can have a significant impact in the way a scene is interpreted emotionally, as I have shown in this simple example. Learn to light creatively and a whole new means of expression will be open to you!

### Do

- 1 Carefully pick what you want the lighting to say
- 2 Always give thought to your character lighting
- 3 Use lighting to drive the story

### Don't

- 1 Just stick to the formula you are used to
- 2 Neglect the emotional impact of lighting
- 3 Always use the same lighting



# Questions & answers

Welcome to the Q&A section where we answer many technical quandaries in popular 3D programs, including modo, 3ds Max, V-Ray, Blender, CINEMA 4D and more

3ds Max, V-Ray

## Use shaders to create photoreal skin

“How can I create more realistic skin for my characters?”



**Creating photorealistic skin is one of the more complex challenges that face the 3D artist.** In this tutorial we will

discuss the main parameters of the VRayFastSSS2 material, what they mean and what values will give you the most suitable results for beautiful skin. We will also discuss how to quickly and efficiently set up a texture for a great skin shader.

VRayFastSSS2 is simple to set up, fast enough to render and also a very powerful tool. You can effectively combine it with other materials to achieve certain results. For example, you can use an additional VRayMtl shader to simulate skin oil and merge it with VRayFastSSS2 with the help of VrayBlendMtl to get more complex and realistic shaders.

There are great opportunities with V-Ray to combine and experiment with different shaders. Hopefully you, too, will appreciate the V-Ray engine and find something useful from this short tutorial.







## 01 General parameters

In General parameters, the preset setting is for your shader presets. For the basis of our skin we'll choose the Skin (pink) option. Prepass rate is the quality of the pre-rendered shader. For the final render it's best setting it to between 0-2, and for setting up the material (test renders), -1-0. The scale setting is responsible for the depth of SSS. If you work in real-world scale, leave it at 1. IOR is the index of refraction for the skin and the best value is between 1.3-1.35 **(A)**.

## 02 Diffuse and sub-surface scattering

Going into the diffuse and sub-surface scattering layers options next, you'll first find overall color, which is the filter for Diffuse and SSS. Beneath this you can control the diffuse colour of the material, then diffuse amount is the value of the diffuse component of the material. Sub surface color controls the colour of the sub surface part of material. With the scatter color option, bright colours will make the material more translucent; dark colours reduce the SSS. Scatter radius is responsible for the depth of diffusion of the SSS. When phase function is used for skin, the best value is 0.8-0.95 **(B)**.

## 03 Specular layer

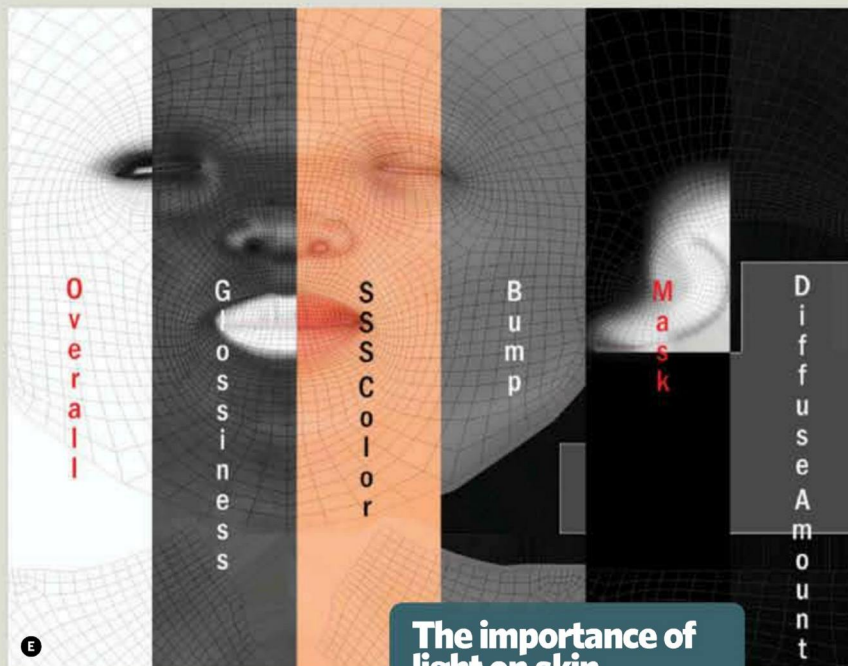
In the Specular layer settings, specular color is the reflection colour of the material – we'll leave it white. Specular amount is the strength of the reflection. Note that falloff fresnel is added depending on the IOR. Specular glossiness is the shape of the highlight – a value of about 1 gives very clear highlights. With trace reflections the shader will generate real reflection, so definitely turn it on. Reflection depth is the quantity of bounces of reflection and we'll leave it at the default 5 **(C)**.

## 04 Further options

In the Options settings, set single scatter to Simple. Single scatter subdivs is the quality of SSS. Leave refraction depth at the default setting. Front lighting enables your front SSS, so leave it on. Back lighting enables your rear SSS, so leave this on as well. We'll turn scatter gi on for the final render. Prepass blur is your blur sample's pre-pass rate – higher values reduce noise, but lead to lost details. We'll leave cutoff threshold at the default **(D)**.

## 05 Select your base colours

Use V-RayColor to set up your shader. Creating a palette simplifies the process of creating the skin – for added convenience you can also use a photograph. Determine the intensity of the glare, the base tone of the skin and the colour of the light scattering. Some values in V-RayFastSSS2 can be set up not just in numbers, but also with colours. For example, an amount of 1 can be reached with the colour RGB 255,255,255; for 0 with RGB 0,0,0. So 0.5 would be RGB 128,128,128, and so on **(E)**.

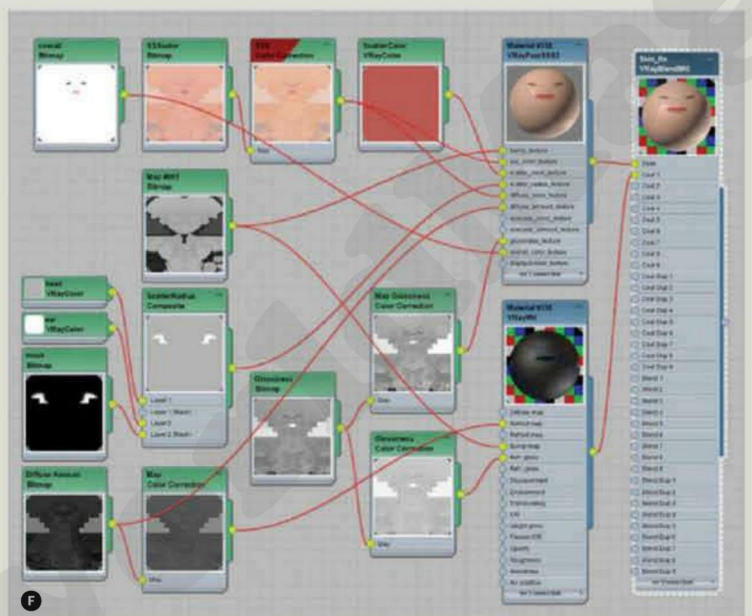


## 06 Texture correction

If after rendering the shader looks nice, we'll replace the colours with textures. You can easily make colour corrections to your textures to obtain the desired results. Colour correction can be done in Photoshop or in your preferred 3D software package. You can create a set of masks for the flexibility of texture settings, they work much like masks in Photoshop. Remember that ears transmit light more than other parts of the face – to achieve this effect you need to draw a black-and-white mask, which means strong and weak light scattering **(F)**.

## The importance of light on skin

When you try to set up your skin shader, lighting is an integral part of the artistic perception of your work, so you should spend time on the alignment of the light sources and their intensity. As well as light, the camera also plays an important role. V-RayPhysicalCamera has all the functions of a traditional camera, so use it for realistic rendering. The values should be the same as for a real camera. You may encounter some problems with glare, but to solve this problem you can simply create a new V-RayMtl and connect it to V-RayBlendMtl. Turn on Additive (shellac) mode.





# Questions & answers

Welcome to the Q&A section where we answer many technical quandaries on the most popular 3D programs, including modo, 3ds Max, V-Ray, Blender and CINEMA 4D

## With the Disc

Find all the files of the project including a 3D model, textures, reference images and the material settings

Blender, Inkscape, GIMP

# Go pro with free software

“How can I create realistic renders using open-source software?”



**In recent years, open source has rapidly risen to prominence thanks to the work of hundreds of users who contribute to the**

**development.** Certainly, open-source applications can be further improved when compared to the more mainstream ones, but they have become quite comprehensive and user-friendly over the years, enabling artists to create good results with little work, and above all without investing money.

In this tutorial we'll show you how to create a complete scene using only open-source applications. We will begin in Blender for modelling and rendering ([www.blender.org](http://www.blender.org)), use Inkscape to create the textures ([www.inkscape.org](http://www.inkscape.org)) and finally GIMP for post-production ([www.gimp.org](http://www.gimp.org)). This software can be

downloaded for free from the respective websites; simply choose the appropriate version for your operating system (Linux, Mac, Windows); they have online manuals that are continuously updated, and are all supported by forums where users can discuss problems and possible solutions (such as [www.blender.it](http://www.blender.it)).

Blender is currently in version 2.63: it has a good raytrace render engine (Cycles) that enables real-time viewport rendering and CUDA GPU acceleration. It also manages BMesh, has a motion tracker and a physical simulator capable of handling fluids, smoke, rigid bodies and clothes. It also has good sculpting tools and a Node editor for compositing.

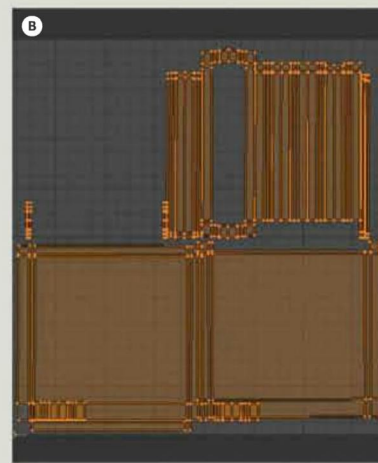
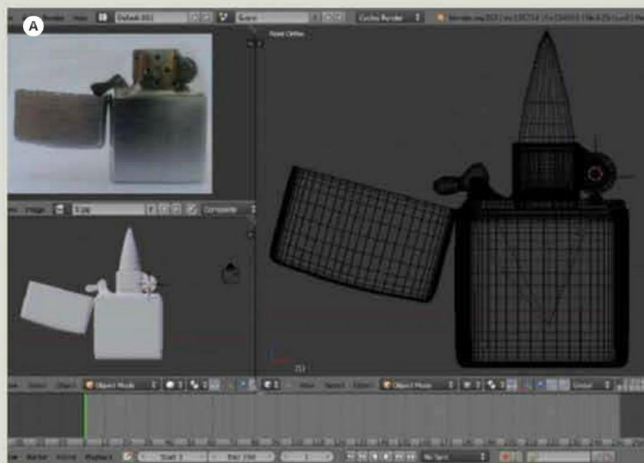
Inkscape is a vector graphics editor. It uses SVG extension as its native format (also supported by Adobe Illustrator) and

can also export into PSD, EPS and PDF. GIMP (GNU Image Manipulation Program) is a free image-retouching and editing tool.

## 01 Begin modelling

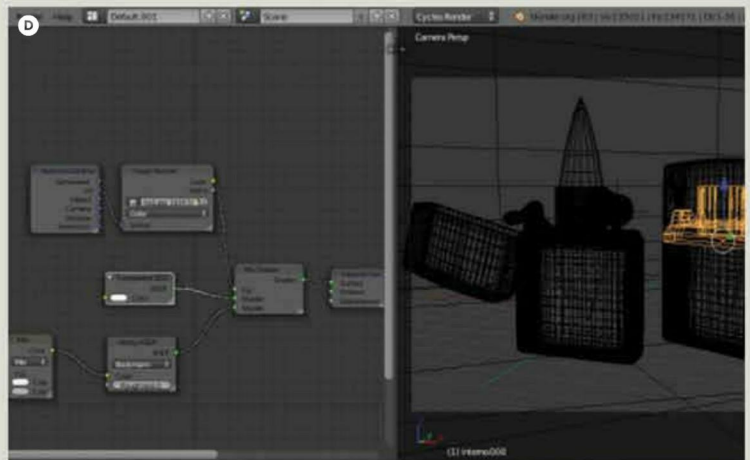
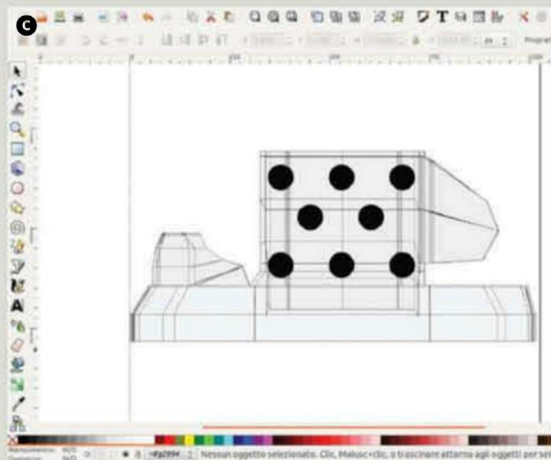
First of all, we need to gather references for the project. I'm using a phone to take photos of an old lighter, in this case. We'll load the reference images, start box modelling, then take a cube (Shift+A, Add Mesh>Cube) and scale up (S) to get the outer shape of the lighter. The interior part is made from a plane (using the Mirror and Subsurf modifiers) and extruding the vertices in Edit mode tab. The holes are not modelled, but rather added using a texture as an alpha channel. The mesh of the flame is on a separate layer to be better managed at render time (A).





## How many samples?

Choosing the correct number of samples in a render is key. Fewer samples means a noisy and unpleasant image, while too many means very long render times and sometimes burned pixels. For this render 500 samples are enough (taking around 15 minutes to render with GPU acceleration), though we'll set it to 1,000 for more realistic depth of field.



## 02 Unwrap the model

Surfaces need to be cut to make it possible to unwrap, so in Edit mode select the edge you want to seam (Cmd/Ctrl+E then click Mark Seam) and proceed to unwrap (Hit U, select Unwrap). Repeat this for all the parts that need a texture. Export the UV layout as PNG images with an alpha channel. These files will be used for the next step **B**.

## 03 Start texturing

Now use Inkscape and GIMP to create the textures. Import into Inkscape the UV layout files. First draw the alpha channel for holes (it's a black-and-white JPG image), next the skull on the outer body with a tablet, and a bump map of an engraving. Add words to the lighter, and another alpha channel for the flame (a JPG flame shape). Apply the texture with flame colours **C**.

## 04 Set up the materials

Select the Cycles render engine. For the outer body of the lighter we will use a light-grey Glossy material with Roughness set at 0.4 (sanded effect) mixed with a Diffuse shader and a Bump map for the engraving. The inner part is a Glossy shader

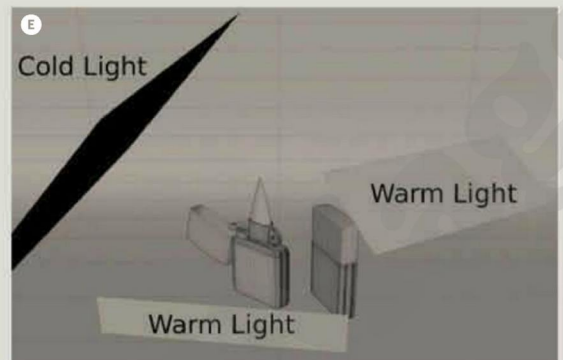
with Roughness set at 0.25, mixed with a Transparent shader. The flame is a light emitter with two textures: one for the alpha channel and one for colours **D**.

## 05 Adjust the lighting

This requires some special attention. We want the scene to be slightly darker than normal, as in an underexposed photo. We'll use three emitter planes: two warm lights and one cold light with a low energy-emission level - this way it will be a low diffused light in the scene and enable the metal to have good reflections. The flame mesh is a high-energy warm light **E**.

## 06 Render and post work

We'll use a 1,000 pass to obtain a clean high-resolution image and an empty position of the first lighter to assign the focal point. The lighters and the flame are on two separate layers, so render and then overlay them with the internal Node editor. We'll apply some nodes to the flame layer (Glare, Color Balance and Blur) to further distort the flame and make it look more realistic. We can then retouch the final image to add a little dirt using GIMP **F**.





# Questions & answers

Welcome to the Q&A section where we answer many technical quandaries on the most popular 3D programs, including modo, 3ds Max, V-Ray, Blender and CINEMA 4D



## Enhance environments with particles

CINEMA 4D

“ How can particle effects help me add more life to my scenes? ”



**This short tutorial will show how CINEMA 4D can be a useful tool to help artists generate interesting particle effects for their scenes.**

Hopefully the information will be useful for your own projects.

The example I'm using shows a field scene just after it has rained, with some natural and atmospheric effects. When we look at this type of image we notice the grass, grain and rain as environmental elements, but really I have used the particles and modifiers available to help create these – particularly the Cloners, Metaball and cloth/colliders.

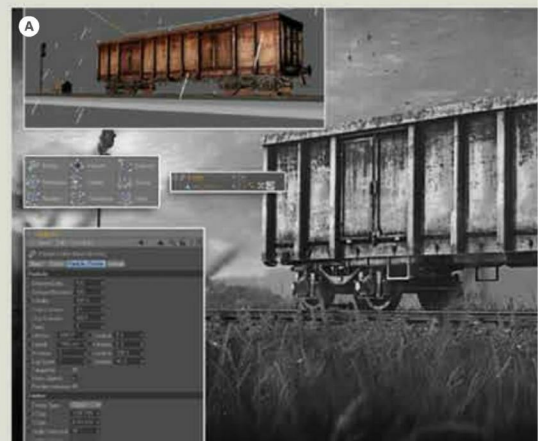
What I like about CINEMA 4D is its symbol system; the icons in the interface make it really user-friendly and help you to understand what each tool does. If you want to learn CINEMA 4D's tools, you just need a little patience and time to find what works best for you and then you're away creating your own 3D artwork. It's a very intuitive program and I find its tools useful in animation and other projects too. Hopefully you will find some of your favourite techniques here.

This short six-step tutorial should give you a helping hand to begin using particles in your own scenes for some interesting results that will bring your images to life.

### 01 Generate rain

We'll begin with a simple presentation showing how to create rain. Make a simple Emitter and then size and place it in the required part of the scene. Set the parameters in the Attributes menu, such as Lifetime, Birthrate, Speed, End Scale and, most importantly, the Emitter Angle Horizontal/Vertical values. The angle needs to create a random direction for the particles to simulate a wind effect without going to the lengths of a particle deformer.

When we play it on the Timeline, we can see the rain. The Show Object feature is very useful when we create waterflow effects, but we can also watch the rain object as well. Don't forget, if you make a render, the particles in the viewport will be invisible, so you'll need to attach a 2D or 3D mesh to them. This is because the visible particle lines are just previews for the artist, they're not real content. If you want to

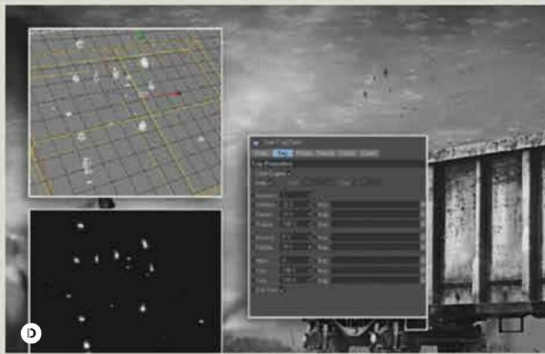
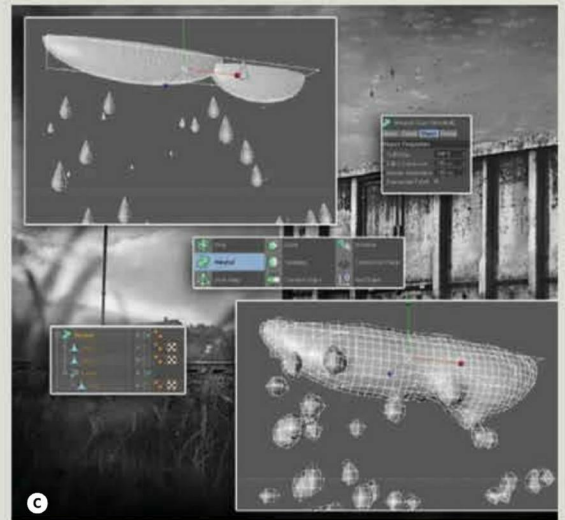


watch it for real, you'll have to fill the Emitter with something, such as a rain mesh **A**.

### 02 A flock of birds

To create an environment filled with life, I've decided to simulate a flock of birds in the sky. To do this, first model some low-poly birds in CINEMA 4D and then use them inside the emitter – the same way we did with the rain mesh before.





Here we have three different bird meshes inside the Emitter group. For these it is vital that the particles are made of random sizes and with a large variety in directions. We can attach more 2D or 3D meshes in one Emitter group if we want to. The system will automatically choose a random source for us from the hierarchy **B**.

### 03 Drops of water

This step isn't very obvious in the final image, but the final composition includes some small water droplet effects. We can either model a droplet or we can use a Metaball effect in CINEMA 4D combined with the particles system. This is very useful and creates a cool effect in animations.

Make a simple preview model by creating two half spheres and subdividing them to around 2,000 polygons. Then create an Emitter system again, create a water droplet shape and then place it inside the Emitter. Set up the variants of the Emitter values, as we did previously. Now create a Metaball group and place all the meshes and emitters inside this. Change the value of subdivision and the hull value for added quality. A lower value means better shape subdivision in the Metaball system, so make this as small as you can **C**.

### 04 Water droplets on the screen

The most complex particle process used in this scene was for the droplet effect on the screen. Here we use a particle friction and cloth collider simulation. The friction is needed to slow the particles close to the surface, otherwise they are moving across the plane. Place a plane and tag by the collider. Create a drop mesh and place it inside the Emitter. Tag this mesh with 'Cloth'. Set up the values and start to play it on the Timeline. You can see that the mesh is working as a sticky liquid. You can then create a Metaball group and place the Emitter inside this. Set the values and find your best shapes **D**.

### 05 A field of grass

Here we'll learn what dynamics are used to create the grass and grain. If you have some painted sources, place these on a plane with an Alpha channel. Create a cloner object from the Mograph menu and set up the required parameters. The cloner has two target placements: one for the targeted object and one for the targeted selection. The latter is very useful when we want to create more selections on one surface **E**.

### 06 Procedural grass

Another way to create grass is using the Hair tool in CINEMA 4D. Create a simple plane and make a Hair tag on it. The program automatically attaches the tag to the selected object. We have transformer tools like Brush, Move, Curl and so on to modify the lines. Without this, the Hair tag has a material system, so you could create modifiers in a procedural way. This module has many more properties and it can be combined with particles, colliders and mesh systems, each with a different outcome. You could generate elements from nature, hair and fur, feathers and more **F**.



### Raise the bar with particle effects

This is just a small guide to present the idea of particles to those interested in using them in CINEMA 4D. We've briefly discussed some of the standards and shown some tips to help you create scenes with numerous particle and simulation effects.

Object cloners, effectors and fur tools are all very useful time savers when you are creating environments. These tools have parametrical values as well, which can be keyed in the Timeline – these are moving and can cope in animation too. If we have a little knowledge about animation, we can use the tools' dynamics in CINEMA 4D's Timeline easily.



# Questions & answers

Welcome to the Q&A section where we answer many technical quandaries in popular 3D programs, including modo, 3ds Max, V-Ray, Blender, CINEMA 4D and more

## Texture control

3ds Max

“How can I easily dictate when multiple textures appear or switch on an object in 3ds Max?”



**Controlling when multiple textures appear or switch in a simplistic way (think of a traffic light system) can be an overly**

**complex task in 3D applications**, with many people preferring to choose the route of blending in post-production. Luckily, inside 3ds Max, we have a powerful file format that enables you to control when a texture appears to the exact frame number.

Thankfully this is an easy task, but unfortunately this workflow is often overlooked by many users, no matter what their level of experience. Of course it is easy to do this via manually key-framing or using MAXScript. For me, though, this introduces

### With the Disc

Scene file plus associated textures (.max files created in 3ds Max 2013)

a level of complexity I would prefer to avoid, especially should changes need to be made by other team members and/or in a rush when that deadline gets ever closer. Here we'll examine how we can achieve this in a flexible manner.

### 01 Plan the textures

We start by collating the textures we need to load at specific frames. I always recommend using some form of asset management, whether it's a third-party option or the Project Folder and Asset Tracker (Shift+T) toolset within 3ds Max. This will be even more important for the workflow when it comes to tracking the files, which are outside of our usual visual reference of having the file name in the Material slot **A**.

### 02 Create the timings of the frame numbers

At this point we'll swap to a standard text editor application – either Notepad or Wordpad will do. From here we type the exact names of the bitmap files on separate lines, including the full file extension. After the names of each of the textures have been added, we leave a space and add a number

### Feeling brave?

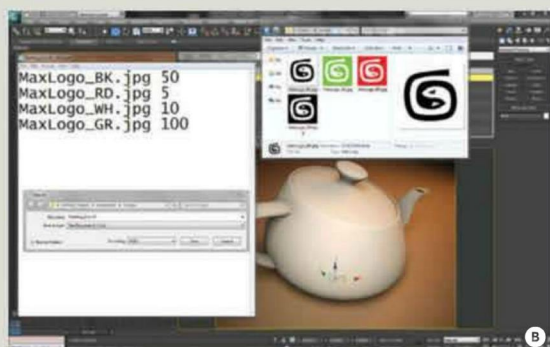
If you were feeling daring you could even try creating the IFL text file from within 3ds Max directly by using the convenient MAXScript dialogue box. This adds extra flexibility to the workflow and enables you to hold it in a tab for future use. I would also recommend to avoid using full file paths. You also have an IFL Manager found in 3ds Max's Utilities that can give enhanced control over time warping, for instance.

that corresponds to the number of frames it should be visible for. We'll now look to save the file, however we need to use a file format called IFL (Image File List). Add this extension manually to the file before saving. Don't worry that it's not one of the drop-down options from within the editor. Ensure you treat this text file as though it were a bitmap and save it straight into the folder location where the textures you're referencing are stored. Typing in 'a' after the frame number enables you to add descriptive notes to the lines **B**.

### 03 Apply the texture

From here we now have a sequence of textures that will be applied at your exact frame count. This sequence will automatically loop and fill your Timeline. Also bear in mind we could easily have nested IFL files for extra material depth. From here onwards we'll treat the text file as though it were a standard map we were applying to any node within a material. Of course, the easiest way is to simply drag the

IFL file from explorer onto the teapot's body. By pressing Play on the Animation Timeline, we can see the material updating. Now it's down to you to examine the possibilities this modest workflow and file format brings to your next project **C**.







# InterPro Workstations. International. Professional.

A leading provider of quality, affordable, 2D/3D hardware and rendering solutions, offering a wide range of bespoke workstations designed to meet your exact needs.



## InterPro IPW-iB Workstation

Specifically made to meet the demands of professional 3D designers and offers a powerful and reliable platform for major design and post-production software

- Built around the latest Intel® Core i7 'Ivy Bridge' processors and AMD's next generation of professional graphics for unrivalled performance and reliability
- Blazing-fast GDDR5 memory and unique AMD technologies enable you to load and model larger and more complex datasets than ever before
- A powerful, high-performing professional workstation built specifically for you at an entry level price
- Professional Overclocking for exceptional performance

**Workstations from as little as £750.**



**For more information:**  
Visit us: [www.ipworkstations.com](http://www.ipworkstations.com)  
Follow us: [@ipworkstations](https://twitter.com/ipworkstations)  
Call us: 0845 241 6745





# Top workstations under £1,200

Aspiring 3D artists don't need to be put off by the cost of dedicated 3D computer systems. Here we test-drive four wallet-friendly workstations

**C**reating the astonishing levels of detail and realism in 3D visuals demands a hefty amount of computing resources. Running a final render in 3D software involves a mind-boggling number of calculations, and is an extremely intensive task for a computer.

Powerful workstations with hardware dedicated to 3D rendering make life easier for artists; unfortunately many of these systems are unaffordable for most people. For students and beginners this can be a big setback.

Thankfully, there are other options if your budget is limited. Although a standard desktop

PC isn't suited for 3D design, vendors offer a range of alternative systems that are similar in price to a high-end gaming computer. These are configured for the needs of 3D designers, with mid-range workstation-class AMD FirePro or NVIDIA Quadro graphics cards.

For £1,200 an entry-level 3D workstation may lack some of the raw performance you find in beefier systems that cost five-times as much, but these systems still have enough power to produce professional-quality output.

Here we look at four workstations that won't dent your finances, from Boston, InterPro, Scan and Workstation Specialists.

OUR TOP CHOICE

This fast and silent system is a deserving winner, thanks to the FirePro W5000 GPU

## The good & the bad

- ✓ Fantastic performance
- ✓ Small footprint
- ✓ Almost silent
- ✗ No hard disk included
- ✗ Plain chassis

## InterPro IPW-iB

**O**ut of the four systems that we tested, three had a near-identical configuration, with the same Intel Core i7-3770K processor and 16GB memory capacity. This InterPro IPW-iB was the only system to use an AMD graphics card... and it shows.

The AMD Firepro W5000 GPU is more up-to-date than the NVIDIA Quadro 2000, and on paper more powerful. It has a faster clock speed, 2GB of graphics memory and considerably more memory bandwidth.

Its off-the-shelf cost is slightly higher than the Quadro 2000, so in order to keep the final workstation price down InterPro has made cuts in other areas. The Antec case looks better suited to an office PC than a powerful workstation, there's only a DVD drive rather than Blu-ray and no hard disk is provided for additional storage alongside the SSD.

The SSD is one of the best around, though: a 240GB Intel 330 Series, known for superb reliability. While the chassis won't win a beauty contest, it has a small footprint and the workstation remains whisper-quiet in use. Another nicety is the inclusion of six USB 3 ports, with four on the ASUS P8Z77-V motherboard and two more at the front.

In most of our tests the FirePro W5000 GPU enabled the InterPro IPW-iB to storm ahead of the pack. The SpecViewPerf Maya benchmark and CINEBENCH OpenGL scores were almost double those of other



workstations. While in other tests the performance gap was smaller, the InterPro still performed excellently in 3ds Max and SpecViewPerf LightWave.

These results make the InterPro IPW-iB worth buying, although we'd certainly recommend spending a bit extra and configuring it with a hard disk to go with the included SSD.

## Essential info

Price: £1,195 (£1,434 inc VAT)  
[www.ipworkstations.com](http://www.ipworkstations.com)

### NAME OF BUILD

- InterPro IPW-iB

### SUPPLIER

- InterPro

### SYSTEM SPECIFICATIONS

- Intel Core i7-3770K clocked at 4.2GHz
- 16GB DDR3 memory
- AMD FirePro W5000 with 2GB memory
- 240GB Intel 330 SSD
- ASUS P877V motherboard
- ASUS NSK4482 chassis
- Windows 7 Professional
- Windows 7 Professional 64-bit

## Our verdict

|                 |       |
|-----------------|-------|
| Features        | 10/10 |
| Ease of use     | 8/10  |
| Build quality   | 7/10  |
| Value for money | 10/10 |

“The InterPro IPW-iB's killer performance completely makes up for its lack of extra hard disk storage”

Final Score **9/10**



## Why choose a workstation?

We shed light on the technical details of modern workstations

- Although much of the technology in workstations and standard computers is similar, workstations are intended for specific tasks. A workstation for 3D modelling will have an AMD FirePro or NVIDIA Quadro rather than a graphics card intended for gaming.
- Workstation graphics cards are designed for stability and reliability, whereas gaming cards are built to run games as fast as possible. If you're serious about professional-quality 3D modelling, one of these cards is a must.
- CPU performance matters greatly too. Having more cores means computing jobs run simultaneously on a pool of physical processors, which improves performance greatly.
- Overclocked systems squeeze further performance from the processor. Although any computer can be overclocked, buying a pre-built overclocked workstation means that extra performance is covered by the warranty.
- SSDs are now essential for any computer, since they have become a lot more affordable. Having an SSD for Windows and 3D software means much quicker loading times and snappier system performance than you'd get from a traditional hard disk.

- A** The InterPro IPW-iB may not look much, but it packs a punch
- B** InterPro has included a substantial SSD, though this doesn't quite make up for the lack of a hard disk
- C** Unlike the other machines listed here, the Venom 2301-7T is liquid-cooled
- D** Though by no means silent or even quiet, the 2301-7T can boast incredible performance with fast render times

# Boston Venom 2301-7T

**B**oston's Venom is unique as it's the only workstation we tested to be liquid-cooled with Zalman's

**all-in-one CNPS20LQ Water Cooler.** This has helped Boston apply an impressive 4.5GHz overclock to the Intel Core i7-3770K Ivy Bridge processor. Unfortunately, it also makes the 2301-7T slightly noisier than the air-cooled workstations, producing a distracting hum even when idle.

For storage, Boston has paired a 256GB Crucial M4 SSD with a 1TB hard disk. This combination provides enough space on the high-speed SSD to install as many applications as you'll need, while the greater capacity of the slower hard disk is perfect for a media library. It has 16GB of DDR3 memory as well, plus a Blu-ray writer.

We noticed the Venom 2301-7T is built around a Supermicro P67 motherboard, which is an older Intel chipset than the Z77 motherboards in other workstations, although there is little performance difference between them. The chassis is also from Supermicro and, while sturdy, is hefty (and rather ugly).

The Venom comes with NVIDIA's Quadro 2000 graphics card, a mid-range workstation GPU with 1GB of memory that offers a perfect price-to-performance ratio for entry-level workstations. A score of 8.9 in the CINEBENCH CPU test was the best CPU performance we recorded. Fast 3ds Max render times were encouraging, although we found some results from the SpecViewPerf benchmark were (just slightly) lower than the other systems.



**BEST CPU PERFORMER**

Unlike the others, this system is water-cooled, giving it the top test results

## Essential info

**Price: £1,200 (£1,440 inc VAT)**  
**www.boston.co.uk**

### NAME OF BUILD

- Boston Venom 2301-7T

### SUPPLIER

- Boston

### SYSTEM SPECIFICATIONS

- Intel Core i7-3770K clocked at 4.5GHz
- 16GB DDR3 memory
- NVIDIA Quadro 2000 with 1GB memory
- 256GB Crucial M4 SSD
- Supermicro P67 motherboard
- Zalman cooler
- Supermicro chassis
- Windows 7 Professional 64-bit

## The good & the bad

- ✓ Very good performance
- ✓ Plenty of storage
- ✓ Small chassis

- ✗ Noisy
- ✗ Bland appearance

## Our verdict

|                 |      |
|-----------------|------|
| Features        | 9/10 |
| Ease of use     | 8/10 |
| Build quality   | 7/10 |
| Value for money | 9/10 |

“The 2301-7T has been overclocked considerably, with clear benefits to render times, but it's very noisy”

**Final Score** **8**/10





## The good & the bad

- ✓ Very good performance
- ✓ Well-built with neat internal management
- ✓ Almost silent
- ✗ One USB 3 port used up
- ✗ Cable protruding from the rear of computer

## Scan 3XS GW-MT15

**S**can is well known as a vendor of components, but now its own-brand systems, such as the 3XS GW-MT15, have become a serious challenge for established vendors.

This system is sold pre-overclocked and the first year of its three-year warranty is on-site, which is handy if you run into problems. Although Scan isn't the only vendor to offer this, it's an extra that could prove highly valuable.

The 3XS GW-MT15 is exceptionally well-built, too. The excellent Cooler Master Silencio case makes it the most attractive system we've looked at. Inside, Scan's engineers have performed an exceptional job of routing cables out of the way, improving airflow and simplifying future upgrades.

Its specification is almost identical to the other workstations. There's a quad-core Intel Core i7-3770K CPU, clocked at 4.2GHz, with 16GB of Corsair DDR3 memory and a PNY NVIDIA Quadro 2000.

Thankfully, the GW-MT15 was completely silent, thanks to Scan choosing a Be Quiet! Dark Rock Advanced Cooler, which is known for exceptionally little noise output.

Scan has included both a 256GB SSD (also from PNY) and a 1TB hard disk. There's a handy card reader built into the front too, which has an extra USB 3 port, bringing the total to six – although one is used by a rear connector that routes back into the case.

Though the processor isn't overclocked to the level offered by the Boston or InterPro workstations, we still measured excellent CINEBENCH CPU performance, as well as fast 3ds Max rendering times. It put in a good showing in SpecViewPerf too, with strong results in most tests, although we found its LightWave score was slightly lower than the other systems.

Even so, it's difficult to find fault with the 3XS GW-MT15. It's built well, looks good and performs brilliantly too.

**GREAT ALL-ROUNDER**  
A good-looking system with excellent rendering times in 3ds Max



**E** Inside the 3XS GW-MT15, Scan has kept things tidy and efficient for any future upgrades or changes

**F** Scan's 3XS GW-MT15 is by far the most attractive workstation listed here

**G** The entry-level WS 1450 doesn't quite meet the higher standards of its rivals

**H** The WS 1450's 120GB SSD and lack of overclocking is evident in its test renders

### Essential info

**Price: £1,166 (£1,400 inc VAT)**

**www.scan.co.uk**

#### NAME OF BUILD

- Scan 3XS GW-MT15

#### SUPPLIER

- Scan

#### SYSTEM SPECIFICATIONS

- Intel Core i7-3770K clocked at 4.2GHz
- 16GB DDR3 memory
- NVIDIA Quadro 2000 with 1GB memory
- PNY 256GB SSD
- ASUS P8Z77-V motherboard
- Cooler Master Silencio chassis
- Windows 7 Professional 64-bit

### Our verdict

|                 |      |
|-----------------|------|
| Features        | 8/10 |
| Ease of use     | 8/10 |
| Build quality   | 9/10 |
| Value for money | 8/10 |

Scan's offering is an excellent all-round workstation that will consistently deliver solid performance

**Final Score 8/10**

### Essential extras

**When buying a workstation, you'll need to factor in some other essential costs**

None of these workstations include a display in the price, which is something you may need to account for in your budget. A good display for 3D work should have enough screen area to work comfortably with your designs, and give accurate colour representation.

Software is another consideration. In many cases, a full professional licence for 3D modelling software is very expensive. There are other options, though. Most offer a free 30-day trial period, which can be used to test the software. For students, Autodesk offers most of its software for free, including Maya and 3ds Max at <http://students.autodesk.com> (you aren't allowed to use these professionally). You will need a student email address and may be asked for proof of your education course in order to access the offer.

Alternatively, there are free software packages, such as Blender ([www.blender.org](http://www.blender.org)). Being open-source, Blender has a vibrant online community of contributors who offer plenty of help for beginners, so it could be a great place to start if you're modelling from a traditional hard disk.



# Workstation Specialists WS1450

**W**hile the other vendors sent us systems loaded with high-performance hardware,

**Workstation Specialists and InterPro are different in that they sell systems intended for 3D rendering.**

Workstation Specialists makes a point of publishing 3D benchmarks for its products, so we can assume the company is capable of dealing with configuration issues that artists run into.

The basic specification of its entry-level WS 1450 seems no different from the other workstations, though. Once again it uses the familiar combination of a quad-core (with eight virtual cores) Intel Core i7-3770K Ivy Bridge processor, NVIDIA Quadro 2000 GPU and 16GB of DDR3 memory, running on an Intel Z77 motherboard.

This one comes in a mid-tower metal chassis with Workstation Specialists' familiar white-and-red logo at the front. We're also pleased to say that in use it was as noise-free as both the Scan and InterPro systems.

There's both an Intel 330 Series SSD and a 1TB hard disk, although the SSD is only 120GB. The processor isn't overclocked either, but Intel's own Turbo Boost feature pushes it from 3.4GHz to 3.9GHz when under load.

This slower CPU speed affected the WS 1450's performance. A CINEBENCH CPU score of 7.44 was lower than the overclocked systems, and in 3ds Max our test scene took 15 per cent longer to render than the InterPro IPW-iB or Boston Venom. However, we did notice better scores in SpecViewPerf's Maya, LightWave and SW01 tests.

**BEST PRICE**

A silent and inexpensive system that still performs well

## Essential info

**Price: £1,145 (£1,374 inc VAT)**  
**www.workstationspecialists.com**

### NAME OF BUILD

- Workstation Specialists WS 1450

### SUPPLIER

- Workstation Specialists

### SYSTEM SPECIFICATIONS

- Intel Core i7-3770K clocked at 3.4GHz
- 16GB DDR3 memory
- NVIDIA Quadro 2000 with 1GB memory
- Intel 330 120GB SSD
- Intel Z77 motherboard
- Custom chassis
- Windows 7 Professional 64-bit

## Our verdict

|                       |      |
|-----------------------|------|
| Features .....        | 7/10 |
| Ease of use .....     | 8/10 |
| Build quality .....   | 8/10 |
| Value for money ..... | 7/10 |

“ The WS 1450 is a solid workstation, but the CPU's stock clock speed slightly affects performance in some tests we made ”

**Final Score** **7**/10

## The good & the bad

- |                            |                                        |
|----------------------------|----------------------------------------|
| ✓ Good overall performance | ✗ No overclock                         |
| ✓ Almost silent            | ✗ 120GB SSD smaller than other systems |



## The results are in...

Choosing a winner was exceptionally difficult, since all four systems we tested had a very similar base specification. Three out of the four used the same graphics card, and benchmarks were similar to the point where deciding which to buy means looking at other criteria than simply raw performance.

Noise output is one such factor. When idle, a workstation should be as close to silent as possible. Storage matters too. With 256GB and a hard disk for media files, you won't ever have to worry about how much free space is on the drive.

However, InterPro's inclusion of an AMD FirePro W5000 card in the IPW-iB boosted its performance greatly and swung our decision in its favour. Although it won't win a beauty contest, and we'd prefer it if InterPro had included a hard disk along with the SSD, this workstation is exceptionally fast, almost silent and so is a deserving winner.



☒ **YES! I would like to subscribe to 3D Artist**

## Your Details

Title \_\_\_\_\_ First name \_\_\_\_\_

Surname \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Postcode \_\_\_\_\_ Country \_\_\_\_\_

Telephone number \_\_\_\_\_

Mobile number \_\_\_\_\_

Email address \_\_\_\_\_

Please complete your email address to receive news and special offers from us

## Direct Debit Payment

☐ UK Direct Debit Payment: I will receive my first 3 issues for £1, I will then pay £21.60 every 6 issues thereafter. I can cancel at any time

| Instruction to your Bank or Building Society to pay by Direct Debit                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                                                                                                                                                                                                                                                                                                                                                                                    |
| Please fill in the form and send it to: Dovetail, 800 Guillat Avenue, Kent Science Park, Sittingbourne, ME9 8GU                                                    |                                                                                                                                                                                                                                                                                                                                                                                    |
| Name and full postal address of your Bank or Building Society                                                                                                      | Originator's Identification Number                                                                                                                                                                                                                                                                                                                                                 |
| To: The Manager<br>Bank/Building Society<br>Address<br>Post code                                                                                                   | 5 0 1 8 8 4                                                                                                                                                                                                                                                                                                                                                                        |
| Name(s) of account holder(s)                                                                                                                                       | Reference Number                                                                                                                                                                                                                                                                                                                                                                   |
| Branch sort code                                                                                                                                                   | Instructions to your Bank or Building Society<br>Please pay Imagine Publishing Limited Direct Debits from the account detailed in this instruction subject to the safeguards assured by the Direct Debit guarantee. I understand that this instruction may remain with Imagine Publishing Limited and, if so, details will be passed on electronically to my Bank/Building Society |
| Bank/Building Society account number                                                                                                                               | Signature(s)<br>Date                                                                                                                                                                                                                                                                                                                                                               |

Banks and Building Societies may not accept Direct Debit instructions for some types of account

## Payment details

Your **EXCLUSIVE READER PRICE** 1 year (13 issues)

☐ UK £62.40 (save 20%) ☐ Europe £70 ☐ World £80

### Cheque

☐ I enclose a cheque for £ \_\_\_\_\_  
(made payable to Imagine Publishing Ltd)

### Credit/Debit Card

☐ Visa ☐ MasterCard ☐ Amex ☐ Maestro

Card number \_\_\_\_\_ Expiry date \_\_\_\_\_

Security number ☐☐☐ (last three digits on the strip at the back of the card)

Issue number ☐☐ (if Maestro)

Signed \_\_\_\_\_

Date \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Code: PCJ047

☐ Tick this box if you do not wish to receive any promotional material from Imagine Publishing Ltd  
☐ Tick this box if you do not wish to receive promotional material from other companies. Terms & Conditions apply. We publish 13 issues a year, your subscription will start from the next available issue unless otherwise indicated. Direct Debit guarantee details available on request.

This offer expires without notice.

I would like my subscription to start from issue: ☐☐☐

## Return this order form to:

3D Artist Subs Department, 800 Guillat Avenue, Kent Science Park, Sittingbourne ME9 8GU

or email it directly to [3dartist@servicehelpline.co.uk](mailto:3dartist@servicehelpline.co.uk)

To manage your subscription account visit [www.imaginesubs.co.uk](http://www.imaginesubs.co.uk)

# THREE EASY WAYS TO SUBSCRIBE

## 1. Online

Order via credit or debit card:

[www.imaginesubs.co.uk/tda](http://www.imaginesubs.co.uk/tda)

and enter the code PCJ047

## 2. Telephone

Order by phone, quoting code PCJ047:

**0844 249 0472**

Overseas: +44 (0) 1795 592 951

## 3. Post or email

Please complete and post the form to:

**3D Artist Subs Department**

**800 Guillat Avenue**

**Kent Science Park**

**Sittingbourne**

**ME9 8GU**

Alternatively, scan and email the form to: [3dartist@servicehelpline.co.uk](mailto:3dartist@servicehelpline.co.uk)

**US readers turn to page 17**

# EXCLUSIVE SUBSCRIBER BENEFITS

**Subscribe today & get your first three issues for £1!**

- Massive savings on the cover price
- Pay only £3.60 for every future issue, saving 40% on store price
- Free postage & packing in the UK
- Free CD every issue
- Delivered to your door





# Subscribe and get 3 issues for £1



**GO DIGITAL!**

GREAT DIGITAL SUBSCRIPTION  
OFFERS AVAILABLE AT:

**IMAGINESUBS.CO.UK**  
FOR ANDROID, MAC, PC  
IPHONE & IPAD

The UK's best 3D magazine has never been  
so affordable, thanks to this introductory offer



**SUBSCRIBE TODAY** [www.imagesubs.co.uk/tda](http://www.imagesubs.co.uk/tda)  
WorldMags.net and enter the code PCJ047



You can now sculpt landscapes directly in a CINEMA 4D workflow



# CINEMA 4D Studio, Release 14 £3,360 / \$3,695US

We take a look at CINEMA 4D R14's new features to discover why this 3D package is even more appealing than its predecessor

**F**or anyone unfamiliar with MAXON's CINEMA 4D software, it's probably best described as a professional 3D production environment. It has a long heritage, dating back to the early 90s where, for the first three versions, it was only available on the Commodore Amiga. By version four, however, it had been successfully developed for Mac and PC. Since then the package has matured into a very professional toolset for 3D modelling, rendering and animation, and with the release of R14 it seems that the features are just getting better.

CINEMA 4D R14 comes in the usual four versions – Prime, Visualize, Broadcast and Studio – tailored to suit various disciplines and

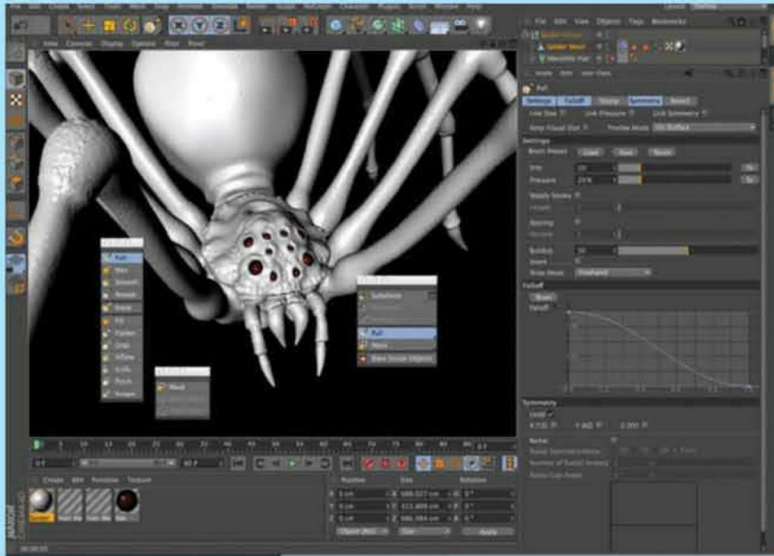
budgets, each with progressively more modules and therefore more features. With prices ranging from £780 at the base end (Prime) up to £3,360 for the top end (Studio), it's not the kind of purchase to be considered lightly. We take a look at just what makes CINEMA 4D stand out, as well as the key new features in the most recent update, CINEMA 4D Studio, Release 14.

The first thing that strikes us about CINEMA 4D is its clean and artist-friendly interface. Unlike some competitor 3D packages, CINEMA 4D has always made great use of clear graphical icons for many of the primary tools, modes and functions, which instantly help a creative user feel at

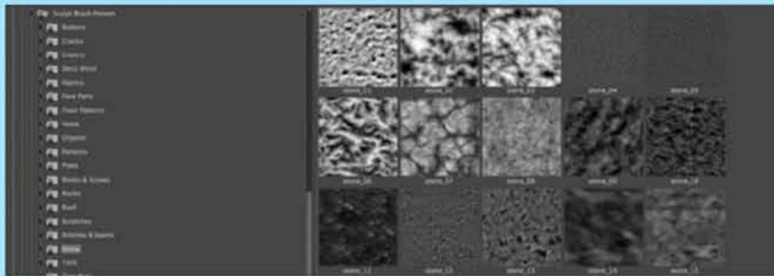
ease. Beyond the graphic buttons, the menu names are still featured, but there is an option (On, by default) for all of these commands to be accompanied by their appropriate icons, making it possible for quick visual selection of all tools and functions. The interface and layout is also completely customisable, so if you like you can create a bespoke GUI and save multiple layouts for specific tasks.

Among our favourite new features in Release 14 have to be the sculpting tools. MAXON has effectively created a ZBrush or Mudbox-style toolset inside the CINEMA 4D workflow, enabling quick, organic, clay-like modelling. You have the ability to add all the necessary details to any of your models with





CINEMA 4D's new sculpting toolset comes with all the basic features and brushes you could need



From within the Content Manager you can browse and load hundreds of preset images and textures

a multitude of highly useful tools, which can be a real time-saver as well as opening up a whole new world of possibilities.

There is also an easy-to-master Camera Calibrator, which is used to match your 3D model to a still photo. A good example of this would be for an architect to accurately integrate a 3D building within a 2D shot of a real location. The Viewport perspectives within this feature can then correctly match the photograph's lines of perspective.

The already excellent render engines (there is both a standard and a physical renderer) have seen some updates too. New Global Illumination (GI) options significantly speed up rendering with GI Multiple Importance Sampling and Radiosity Mapping. There is also an excellent set of updated shaders, including a new procedural Wood shader that creates stunningly realistic and completely customisable 3D wood grain, plus a Weathering shader to add grime and degraded effects to materials to make them more realistic. The Normalizer shader speeds up and simplifies the creation of Normal maps for more realistic bump/displacement texturing on low-poly objects, and the Subsurface Scattering (SSS) shader has also

seen some enhancements that enable realistic simulation. This feature is perfect for rendering thinner objects like leaves or paper in your 3D artwork.

CINEMA 4D is an incredibly diverse package, offering a very stable and highly competent toolset for any 3D hobbyist or professional. Release 14 has confidently nudged the bar even higher with an arsenal of new and improved tools and features.

## CINEMA 4D options

There are a few packages available for CINEMA 4D users:

- **Prime** - this is the entry-level version, but is by no means short on features and power ([www.maxon.net/products/cinema-4d-prime](http://www.maxon.net/products/cinema-4d-prime))
- **Visualize** - this one is themed towards architects (arch vis) and designers ([www.maxon.net/products/cinema-4d-visualize](http://www.maxon.net/products/cinema-4d-visualize))
- **Broadcast** - as its name suggests, this is aimed at 3D motion graphics/TV professionals ([www.maxon.net/products/cinema-4d-broadcast](http://www.maxon.net/products/cinema-4d-broadcast))
- **Studio** - this one is the all-singing, all-dancing 3D package, offering every available tool in the MAXON arsenal in one extremely powerful package ([www.maxon.net/products/cinema-4d-studio](http://www.maxon.net/products/cinema-4d-studio))

## The good & the bad

- ✓ Very user-friendly interface
- ✓ Professional results
- ✓ Diverse toolset
- ✓ Multiple package options
- ✓ Large third-party developer support (including third-party renderers)
- ✗ Costs may be prohibitive for hobbyists
- ✗ New sculpting tools probably won't be seen as a complete replacement for the similar ZBrush or Mudbox features

## Essential info

**Price:** £3,360 / \$3,695US

**www.maxon.net**

### PRODUCT

- CINEMA 4D Studio, Release 14

### OPERATING SYSTEMS

- Windows/Mac

### OPTIMAL SYSTEM REQUIREMENTS

- Windows XP, Vista or 7 running on Intel or AMD CPU with SSE2-Support
- Mac OS X 10.6.8 or higher running on a 64-bit Intel-based Mac
- 1,024MB free RAM



Subsurface scattering at work. This enhanced shader enables the creation of realistic fluids, leaves, paper, glass and skin by simulating light effects

## Our verdict

|                          |      |
|--------------------------|------|
| Features .....           | 8/10 |
| Ease of use .....        | 9/10 |
| Quality of results ..... | 9/10 |
| Value for money .....    | 8/10 |

Some solid enhancements and improvements have been made to an already comprehensive 3D toolset

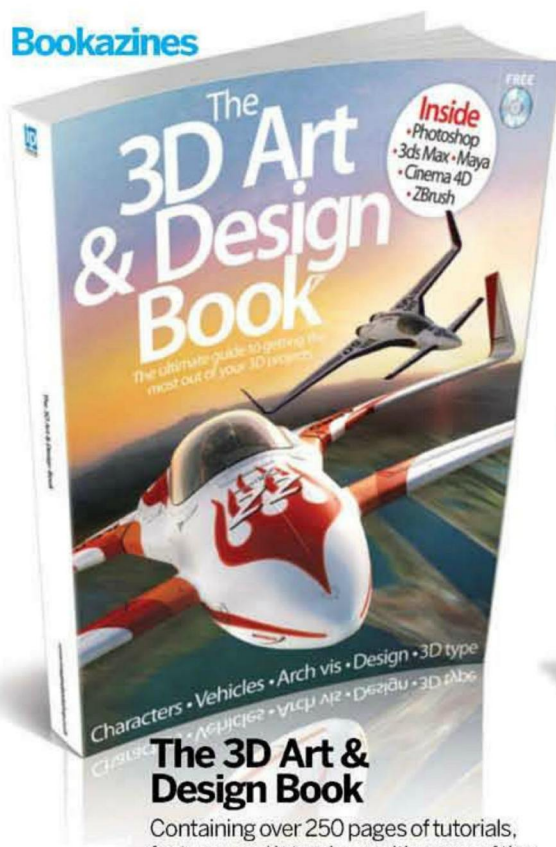
**Final Score** 9/10



# Bring your creations to life in glorious 3D...

Imagine Publishing has a range of magazines, bookazines and DVDs to get your creative juices flowing.

## Bookazines



### The 3D Art & Design Book

Containing over 250 pages of tutorials, features and interviews with some of the very best 3D artists. Comes with a free CD of tutorials and video tuitions to fine-tune your skills and techniques.

**£14.99**

## Back issues



Only  
**£6**



### Fantasy Art Vol. 2

An inspirational array of tutorials and features to get you creating wonderful works of art in no time at all. Create works of art with no boundaries and learn from the fantasy masters.

**£12.99 with code**



### The Digital Artist Collection Vol. 1

Showcasing some really inspiring artwork that draws upon industry-standard tools, techniques and software, this collection is perfect for digital enthusiasts and professionals.

**£12.99**

## DVDs



### 3D Artist eMag Vol. 1

Are you one of the many who missed out on an early issue of 3D Artist? No problem – the 3D Artist eMag brings you issue 1-20 on one fully searchable DVD!

**£19.99**



Become an ImagineShop customer and leave reviews of your favourite products.

Discount  
code  
Take £2 off Fantasy Art  
Vol. 2 with the code...  
**PAINT**

**Digital Artist eMag Vol.1**  
For those who missed out on the early editions of Digital Artist magazine, this fully searchable DVD-ROM eMag features the complete collection of articles from the first 20 issues. Playable on a PC or Mac.  
**£19.99**



Order online

**imagineshop.co.uk**



@imagineshopuk  
/imagineshopuk

MAGAZINES

BOOKS

DVDS

DOWNLOADS

GIFTS



# workspace<sup>3D</sup>

Inside guide to industry news, studios, expert opinion and education

“There is so much truth in the statement that talent is only a small part of success, most of it is work and practice”

Toni Bratincevic, senior environment artist at Blizzard Entertainment, discusses what it takes to land a dream job in the 3D industry. Page 110

## Running Away

Accomplished 3D artist Toni Bratincevic is completely self-taught, having worked his way up the ranks from a small studio in Croatia to Blizzard Entertainment in the USA  
[www.interstation3d.com](http://www.interstation3d.com)  
 © Toni Bratincevic

## 102 News

### Industry news

Chris McMahon reports from the front lines of the Unite 2012 conference and checks out some of the latest new releases

## 105 Course Focus

### 3D Creature Sculpting

Learn to sculpt terrifying creatures in an eight-week CGWorkshops course by Bryan Wynia

## 106 Studio Access

### Meet Leviathan

The projection-mapping specialists reveal how clients are embracing interactive advertising

## 108 Project Focus

### 'A Fox Tale'

A talented group of Supinfocom students discuss their Chinese-fable-meets-martial-arts short film

## 110 Industry Insider

### Blizzard cinematics

Senior environment artist Toni Bratincevic talks about his life-changing move to Los Angeles

inside

To advertise in workspace please contact  
 Ryan Ward on 01202 586415 or [ryan.ward@imagine-publishing.co.uk](mailto:ryan.ward@imagine-publishing.co.uk)

WorldMags.net





## Unite 2012 presents a new future for gaming

How the Unity game engine is simplifying and globalising game development

**A** Simplification isn't Unity's only aim. So too is globalisation. "We have people in China, Korea, Japan, Singapore, Malaysia, Russia, Brazil, Colombia," says CEO David Helgason. "We have this philosophy that developers are everywhere, and we should be there with them"

**B** "I left Microsoft on 3 March, walked up the road into my new office at 11am, and by 5pm I had a pre-vis on my screen. That's an amazing iteration cycle," says Peter Molyneux of his first experience at Unity

**C** Unity 4.0's real-time tech demo, 'The Butterfly Effect', revealed the kind of animations that can now be created in Unity, featuring high-quality graphics, effects and animation

**D** The automatic retargeting animation system Mecanim currently only works on humanoid models, but it will expand in the future. "Right now it's Mecanim version one," says Helgason

"When you start in a basement, maybe you don't have a particular size in mind, but you are at least thinking that what you're doing should be a real thing at some point!" Unity CEO David Helgason is talking to 3D Artist in a glass-walled conference centre, sitting amid a former gasworks turned cultural venue, Westergasfabriek, in Amsterdam. The Unite 2012 conference, we suggest, is far removed from that basement. "I liked the basement!" laughs the ever-bright Helgason. "But what I like about being bigger is not the office or anything. It's the leveraged position. You get a good idea and you don't have to wait two years before you can try it. You just find two or three people and say let's try this! It's so much fun."

Unity's constant iteration has culminated in the recent release of Unity 4.0 – which, across a series of

talks, seminars and demonstrations, Unite 2012 is busy celebrating. The vision is the same as it's always been – the democratisation of game development, and placing the focus solely on creativity.

"At first we removed the engine developer. You don't have to code your own engine and you don't have to know how to write the low-level DirectX code or OpenGL code," says Helgason. "If you're an artist you can buy some trees rather than model them, and you can focus on making the lighting more beautiful, or tweaking the existing trees so that they're exactly right instead of spending days building them from the ground up."

### Brian Fargo discusses Unity's asset store

"We think we'll be close to using about 500 assets from the asset store once we're done," says Fargo of development on the Kickstarter-funded *Wasteland 2*. "It'll be mostly art, but it's also going to be programming – particle effects, pathing routines; all the drudgery stuff we don't want to have rewrite over and over again. We'll stay more fluid in our process that way."

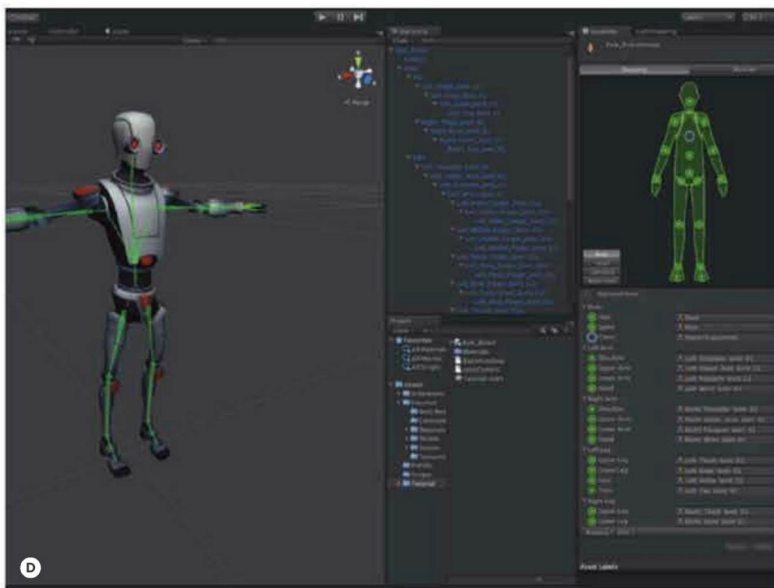
“We want chaos... It's costly and stressful, but we pay the price of that additional complexity in return for getting the creativity”

David Helgason, Unity CEO



## workspace

To feature in **workspace**™ please contact  
Chris McMahon on 01202 586239 or  
chris.mcmahon@imagine-publishing.co.uk



## Unity 4.0 graphical improvements

We asked Unity CEO David Helgason what graphical improvements have been made to Unity 4.0: "There's the DirectX11 stuff of course, and then we have loads of low-level improvements. There's stuff like bump-mapped terrain, font rendering, dynamic shadows on mobiles and we have improved cubemapping imports. We also improved floating-point, render-texture formats, which enables you to do advanced HDR rendering and achieve these really beautiful effects."

The same goes for Mecanim – Unity 4.0's automatically retargeting animation system, which according to Helgason "partly removes the animator" from the process.

"Of course these guys don't get fired, but they can move on to more productive work," Helgason explains. "Instead of spending days doing the stupid work of cutting the frames and all that fiddly stuff, with Unity animators can go back to Maya or MotionBuilder and really focus on just producing beautiful animation. We want to save everybody work because then you can raise the level of excellence across the board."

Veteran game designer Peter Molyneux has used Unity to develop the first game from his new independent startup, 22 Cans, titled *Curiosity: What's Inside The Cube*. He's quick to agree with Helgason: "Unity

takes some of the heavy-lifting work out of game development," he tells 3D Artist. "Allowing artists to do more of what they will be good at, and less through a programming team, is very useful. If there's a way for artists to visually move things around and decide on things like camera angles rather than it being [done by] traditional coders, that's a lot better."

Highly regarded designer Brian Fargo is similarly effusive when it comes to the global development opportunities presented by Unity. "My UI stuff is being done in another state. I've got people helping us with contract work in Europe. I've got my portrait artist in China," he says of the Kickstarter-funded *Wasteland 2*.

"We're tapping into this worldwide base, and that widens the palette of things I get to choose from. Before, I just had my guys in the office, but now if I want a distinctive art group I can fall in love with a guy's work, track him down to some province in China, and a week later he's doing work for me. I get to look at the world. I think that's where development is going."

From the basement to the whole world – Unity has certainly grown, and it's not stopping here. In a way, it feels as important for the games industry as the introduction of affordable handheld cameras was for the film industry. "We want chaos," smirks Helgason. "It's costly and stressful, but we pay the price of that additional complexity in return for getting the creativity. And we've produced some very, very creative results."

## Software shorts

Bringing you the lowdown on product updates and launches

### Lightbrush

Tandent Vision Science has released Lightbrush, a new application designed to reverse engineer real-world images into the components that formed them: reflectance (the inherent colour of the object) and illumination. This enables artists to break a photo down into its components and open up interesting possibilities for image editing. At \$1,500 though, it isn't cheap: [www.tandent.com/lightbrush](http://www.tandent.com/lightbrush).



© Copyright © 2012 Tandent Vision Science, Inc.

### Substance Designer 3

Allegorithmic has released Substance Designer 3, the most recent update to its dedicated videogame-texturing tool. Key features include unique batching tools, which automate 80 per cent of the texturing work; a bitmap-painting system that enables users to do retakes on images; and an advanced filter library that shortens the time it takes to get a professional-grade texture. Get it for \$590 at [www.allegorithmic.com](http://www.allegorithmic.com).



### Voice-O-Matic (Maya Edition) 2.0

Di-O-Matic has shipped version 2.0 of its automated lip-sync tool. New features include expanded language support and improvements in accuracy, plus a new quality Presets system. A Pro version of the software has also been released, which includes batch processing, enhanced MEL scripting and pipeline integration features. The Standard and Pro editions cost \$349 and \$999 respectively. You can buy them at [www.di-o-matic.com](http://www.di-o-matic.com).



## Insightful snippets

Savannah College of Art and Design to offer the first MFA in Themed Entertainment Design



The Savannah College of Art and Design's School of Film, Digital Media and Performing Arts

is to separate into two new institutes. One will be The School of Digital Media, which will house such departments as Animation, Visual Effects and Game Development. The other will be The School of Entertainment Arts, offering the first MFA in Themed Entertainment Design. The course is designed to develop student skills in the multi-billion-dollar themed entertainment industry, teaching them to create the kind of sensory experiences and latest design techniques used by the likes of Disney's Imagineers. Read more at [scad.edu/themed-entertainment-design](http://scad.edu/themed-entertainment-design).



## A look to the future

### Autodesk explores augmented reality

Autodesk Labs has released a free technology preview of a new Augmented Reality plug-in, which enables users to overlay graphics, text, video and sound onto a live video feed of the real world, in real-time. This makes it easier than ever to showcase what your 3D models could potentially look like in a real situation – ideal for arch-vis, for instance. As yet, the tool only works with the 2013 release of Showcase, Autodesk's CAD rendering software, but it's not impossible that it might eventually make it into the company's DCC packages. The preview is available until 31 October at [www.tinyurl.com/autodeskag](http://www.tinyurl.com/autodeskag).



Augmented reality plug-ins such as this can help artists to better visualise how their finished products will look in an environment

## Luxology Releases NPR Kit

### A new non-photorealistic renderer that gives your creations a cartoon sheen

#### NPR Kit

Luxology has launched a new tools extension of modo 601 titled the NPR Kit. Short for 'Non Photorealistic Rendering', the new package can turn 3D renderings into impressive toon-shaded animations, giving your work a heavily stylised look. The kit comes with options for toon shading, stippling, halftones and edge rendering. The unique new SketchTone shader, meanwhile, can read hand-sketched hatching examples to reproduce an artist's original drawing on any 3D surface. The NPR Kit is available right now for \$199 at [www.luxology.com](http://www.luxology.com).



"The ability to emphasise the edge, colour and pattern details of 3D models with a range of traditional looks really extends the creative options for modo designers and artists," said Luxology marketing VP Bob Bennett

## The Foundry introduces NUKE 7.0

### The industry-leading compositor gets a revolutionary seventh version, packed with substantial improvements based on user feedback



"This is the one people have been waiting for," said Jon Wadeldon, NUKE product manager. "NUKE is now faster than ever"

The Foundry has announced NUKE 7.0, a "revolutionary version" of its widely used compositing software created based on feedback from the software's extensive user base. Speed improvements and optimised performance are at the core of the package, with NUKE 7.0 introducing RAM cache, a feature long desired by the community that offers real-time playback of work. Also debuting in this release are a variety of GPU-accelerated nodes for the enhanced NUKEX package, the ability for users to model using NUKEX's ModelBuilder and enhanced roto tools. There's also support for a range of programs including Alembic, OpenEXR 2.0 Deep Data and new camera RAW formats. The software will go on sale this autumn [www.thefoundry.co.uk](http://www.thefoundry.co.uk).

## Congratulations to...

### The talented winners of the 2012 Unity Awards

The 2012 Unity Awards also took place at this year's Unite 2012, featuring the greatest and most innovative titles created by the Unity community. They were:

- Best Non-game** – *Bats! Furry Fliers of the Night* by Bookerella and Story Worldwide
- Best Serious Game** – *Powers of Minus Ten* by Green-Eye Visualization
- Best Student Game** – *Pulse* by Team Pixel Pi from the Vancouver Film School
- Best Technical Achievement** – *Dead Trigger* by MADFINGER Games
- Best Visual Experience** – *Escape Plan* by Fun Bits and SCEA
- Best Gameplay** – *Beat Sneak Bandit* by Simogo
- Community Choice** – *Dead Trigger* by MADFINGER Games
- Golden Cube** – *Total War Battles* by The Creative Assembly and SEGA



Golden Cube-winner *Total War Battles* strips back the series' complex PC gameplay for a simplified iPad version, but does so without sacrificing the sensation of being a real commander

## Luxion Releases KeyShot 3.3

### This new release includes the optional KeyShotVR web-viewing application

Luxion has updated its intuitive real-time raytracer, KeyShot 3, with enhancements that speed up the rendering process, a new colour selector and improved texture mapping. The optional add-on, KeyShotVR, enables an interactive 3D representation of products that can be viewed on any HTML5-enabled browser, including mobile devices, without the need for any special plug-ins. The standard edition of KeyShot 3.3 is available for immediate download and purchase at \$995, while KeyShotVR is available for \$1,000, at [www.keyshot.com/buy](http://www.keyshot.com/buy).





# Course Focus

## 3D Creature Sculpting

Learn to sculpt fantastic creatures in ZBrush from a Sony Santa Monica legend



### Course name

3D Creature Sculpting

**Course length** Eight weeks – next workshop commences 22 October 2012

**Fees** \$599 US or \$539.10 US for CGS Connect members

### Student requirements

Students will need a copy of Photoshop and ZBrush

**Website** <http://workshops.cgsociety.org>

### The tutor



### Bryan Wynia

Currently working as a senior character artist at Sony Santa Monica – the studio responsible for the *God of War* series, Bryan Wynia has also worked at Naughty Dog on *Uncharted 2* and *3*, and has worked as a freelance character designer and sculptor for clients such as Gentle Giant Studios and Electric Tiki Design. Really, there are few better to learn the art of creating awesome creatures from!



**G**iven that he currently works for Sony Santa Monica – the game developer behind *God of War*, a videogame series with a plethora of mythological creatures – there are few better teachers than Bryan Wynia to educate you in the fine art of creature design.

"In this course I share my process for concept sculpting and designing creatures and characters," he tells us of the eight-week online course. "Students will learn about key sculpting design principles and techniques, from gathering references and generating thumbnails to comparative anatomy and composition. By the end of the course, students will have designed and created two unique creatures of their very own."

These two maquettes take the form of a bust – a portrait sculpture that shows the head and shoulders of the character, and a full-body design. The creatures are developed from the field of cryptozoology: the search for animals whose existence hasn't been proven yet – hence all the Yetis!

Wynia will share the same process he uses when designing creatures and characters for professional projects, teaching students how to use reference to create sculpts and refine their visions using ZBrush.

"It was an amazing experience. I would do it all over again, numerous times!" says student Harwinder Singh. "The most important thing I learned by watching Bryan was where to spend energy; which aspects of the process to focus on and how not to waste too much time on secondary things. This, plus all the technical and design elements and the feedback from Bryan, made the course worth every penny."

Learn more at <http://workshops.cgsociety.org>.

**“I recommend it to anyone [with] an interest in designing creatures [who] wants to take their game to a higher level”**

**Harwinder Singh, ex-student**



### A Yeti 2012

» Harwinder Singh

This image exemplifies the level of detail and personality the course teaches students to ingrain into their creations. There's a real sense of life to this character

### B Yeti 2012

» Magid Hoff

Hoff's Yeti is one of the most noble-looking we've seen yet! As well as Yetis, the course will teach you to sculpt a variety of other vicious, snarling creatures

### C Deep One 2012

» Mauro D'Elia Matheus

"I loved Bryan's workflow using ZBrush for concept art," says Matheus. "From the first sculpt to final render, you can have a great image... in a couple of days"

### D Deep One 2012

» Martin Punched

"The course was a blast!" says Punched. "Bryan is a master of his craft. He definitely has a unique way of working and put a lot of effort into the course"

### E El Chupakabra 2012

» Tihomir Dimitrov

Dimitrov works as a character artist at Ubisoft Sofia, on projects such as *Assassin's Creed III: Liberation* on the PS Vita. "The workshop is really worth it!" he comments



*Studio Access*

## Projection-mapping specialists

Leviathan discusses the new capabilities of projection mapping in broadcast and interactive spaces

### LEVIATHAN

Leviathan is a design-focused production studio with the aim to create both traditional broadcast and VFX work alongside large-scale visual experiences. Its output comprises of television work, experiential installations and online campaigns

**Country** USA

**Clients** Microsoft, HP, Intel, Whirlpool, AT&T, Chrysler, Walt Disney Imagineering, Skrillex, Amon Tobin

**Website** [www.lvthn.com](http://www.lvthn.com)

**Expertise** Projection mapping

**Project description** Leviathan has been exploring and pushing the possibilities of projection mapping, taking it in several interesting directions. Just last year it used the technology to bring Brazilian musician Amon Tobin's tour to life, projecting 3D visuals onto a cuboid stage to instill a stationary sculpture with dynamic, mechanical and captivating movement

**Software used** Maya, V-Ray and TouchDesigner



Key people

**Chad Hutson**  
Executive producer

**Matt Daly**  
Chief scientist

**Jason White**  
Executive creative director

**E**stablished in 2010, Leviathan is a relatively young production house compared to the big-hitters in the industry. However, the experimental, unique and forward-thinking work it is producing is nothing less than ambitious in the broadest sense.

"After collaborating with my now partners Chad Hutson and Jason White individually, I discovered we all have ideas on how to take broadcast CG and visual effects and meld it with personal experiences," says Leviathan's chief scientist Matt Daly of the company's formative years. Two years on from that initial concept and Leviathan has grown to a staff of 22, which currently splits its time between standard broadcast work and its various experiments with interactive experiences.

"It's an even 50-50 split between broadcast and experiential gigs," says Daly. "Clients and agencies have really embraced using interactive and immersive events to advertise in the last couple of years, and they don't settle for less than broadcast-quality content to convey their messaging. Luckily, we have that covered."

Much of Leviathan's work in the experimental side of VFX production has gone into 3D projection mapping – the process of casting pre-rendered images onto surfaces to give them a dynamic sense of movement. "We knew there was a market for real-time and interactive content creation outside of the traditional games realm, so we now fill a niche for our customers in creating experiential works that combine our engineering capabilities with our traditional 3D production expertise," Daly elaborates.

“Clients and agencies have really embraced using interactive and immersive events to advertise in the last couple years” **Matt Daly, chief scientist**



The studio's most prominent projection-mapped project was achieved last year, in collaboration with visual art laboratory V Squared Labs Inc ([www.vsquaredlabs.com](http://www.vsquaredlabs.com)). "Vello Virkhaus, founder of V Squared Labs Inc, called me about the possibility of creating a projection-mapping system for [electronic musician] Amon Tobin. It needed to be road-ready for an aggressive touring schedule, and it needed to be dynamic and expressive in a way that could keep up with Amon Tobin's style," Daly adds.

The tour ([tinyurl.com/amontobintour](http://tinyurl.com/amontobintour)) saw Leviathan's 3D visuals projection mapped onto a huge set of stacked cubes, the imagery pulsing and pounding on the sculpture in time with the music. "There are several ways that projection mapping works," continues Daly, "but what we developed was another technique altogether. We take an accurate representation of the geometry to be mapped into our system, and then that surface is essentially



*portfolio highlights*

Some of the varying projects Leviathan has worked on include:



**2012** 'Dodge Dart' commercial  
**2011** HP 'Play Big' event  
**2011** Amon Tobin tour  
**2011** The North Face/DSG commercial  
**2011** Whirlpool Cabrio commercial  
**2011** Drake, OVO Fest  
**2010** Thermos and Threadless commercial  
**2010** SPEED Network, NASCAR Race Hub

**A** The tool that does most of the heavy lifting in projection mapping is TouchDesigner by Derivative. With its roots in Houdini, this open-ended toolkit is used to create intuitive and interactive media systems for a whole range of outcomes

**B** Leviathan's 'Dodge Dart' commercial is particularly impressive. Combined with a live-action shoot, the projection-mapped visuals around the vehicle give the impression of movement even while it remains stationary





texture mapped with content in real-time. Then, for each physical projector, a matching virtual camera is placed in this 3D environment. Therefore, we are able to create seamless projection over complex surfaces."

Essentially, Leviathan is rendering a final CG project and then projecting the flattened map onto a complex surface. Getting the images to align with the corners, extrusions and recessions of an object is what makes the work so incredibly challenging.

What makes it possible for Leviathan to achieve this with minimal stress is its projection alignment tool. "This is an application that precisely matches the virtual cameras to the virtual geometry in an identical spatial relationship to their physical counterparts. It reduces alignment time for us by 70-80 per cent, which can be measured in hours or days in some cases," Daly explains. "The process is currently done in the field using a tablet computer, but we have recently developed a system that will perform the function in real time using an advanced computer-vision algorithm."

What's next for Leviathan? "The outlook for the coming year is a steady upward incline... We're sticking with our core philosophies and passions. They've served us well so far," Daly concludes.



Images courtesy Leviathan

**C** Leviathan's collaboration with Hewlett Packard, titled 'Play Big', saw the companies sync touchscreen synthesizers to 3D projection-mapped content. The finished article is an impressive, large-scale, audio-visual collaboration

**D** When creating a range of different fluid simulations for electronic musician Skrillex's tour, Leviathan relied heavily on Autodesk's Entertainment Creation Suite. Softimage and the ICE system were particularly important to the project

**E** Leviathan doesn't just focus on its more experiential experiences. It has also done plenty of commercial and broadcast work over the years too, with clients ranging from The North Face to Discovery Channel's *MythBusters*

**F** "Microsoft [has] packed an amazing amount of technology into a small and affordable package. Other companies sell less-effective systems at 300 times the cost," says Daly of the Kinect. "The tech is fun now, but it'll soon be serious business"



## Project Focus 'A Fox Tale'

The story of a gruelling one-year schedule that nevertheless resulted in a beautiful, striking and impressively professional-grade student animation

### SUPINFOCOM Arles

#### Project 'A Fox Tale'

**Description** Inspired by ancient Chinese folklore, 'A Fox Tale' sees a young vixen transformed into a sensuous young woman by a magical lake. Now a somewhat less literal kind of fox, two infatuated brothers do battle over her, their struggle extending from lush, verdant forests up to lightening-wracked mountain peaks.

#### Website

[www.afoxtalemovie.com](http://www.afoxtalemovie.com)

**School** Supinfocom Arles

**Country** France

**Software** 3ds Max, V-Ray, ZBrush, After Effects, Premiere Pro, Toolbox 2.0, RayFire, FumeFX, Particle Flow

#### About the school

Supinfocom Arles is a French school that teaches its students the skills required to become directors and artists in the world of 3D.

Supinfocom currently supports 1,100 students across three different sites around the world.

**C**reated as a graduation movie at the prestigious French 3D and animation school Supinfocom Arles, 'A Fox Tale' is a beautiful and technically impressive short, created in just one year by four students who hadn't worked together before: Alexandre Cazals, Chao Ma, Thomas Bozovic and Julien Legay. The initial plot concept came from artist and animator Chao Ma. "I was inspired by a Chinese ghost story, which I heard when I was young," he tells us. "The most beautiful one I heard is the fox's spirit story; a fox who can transform into a pretty woman to seduce a man."

After Ma had created the character designs and storyboard around this central idea, Cazals, Bozovic and Legay jumped into the technical side of the project in November 2010, working on 3D animatics to rough out the overall rhythm of the project, before moving on to fleshing it out. "Character modelling, texturing, shading and skinning took two months," says generalist Cazals. "The environment modelling and look development took one month. We worked with 3ds Max and the render engine V-Ray. We used Hair Farm for the fur of the fox character."

Three months were also spent on creating the film's stunning effects, which range from phosphorescent water ripples to smashed rock faces. "Julien was really useful in every part of the production, but he was quickly interested in the FX, which he had never done before this project," says Cazals. "The particles were made using Particle Flow in 3ds Max, but for some other effects we used some plug-ins. We used RayFire for the destruction, RealFlow for the liquid simulations and FumeFX for the fluid simulations."



The production's animation work also took four months, resulting in the beautiful, sleek animations of the fox and the brutal, dynamic combat between the two central male characters. "When the fox turns into the woman I used the original fox's moves to present her posture," says animator Ma. "She lands on four feet and crawls, extending her front arms, curling up at the bottom, stretching herself – it makes her more charming."

As for the action-packed anime-esque fight sequence, it was more or less designed on the spot. "We did not have enough time to discuss Wushu design, so we took the timing and character placement in the animatic as a reference, and concepted the brothers' fighting choreography from that as we were working on it. I tried not to repeat actions while also portraying each character's personality and sticking to a certain rhythm, which is not that easy when we needed to finish three seconds of animation each day!"

The pressures of time were felt by the whole production team, particularly by Cazals who, among his many other responsibilities, was also in charge of

### Contributors

The four directors:

Alexandre  
Cazals

Thomas  
Bozovic

Julien Legay  
& Chao Ma

“Three months were... spent on creating the film's stunning effects, which range from phosphorescent water ripples to smashed rock faces”

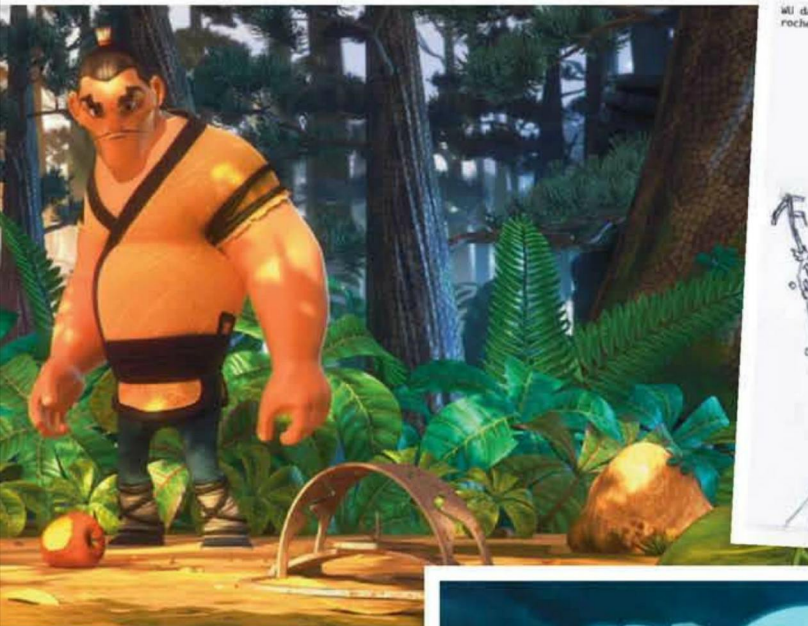


**A** Cazals explains the story-writing process: "At the beginning the characters were an old wise man and a young, brutal, big guy. That changed with the plot. Ma did a great deal of work on them, getting their personality on paper"

**B** 'A Fox Tale' was a troubled project, with the group's teachers often criticising early versions of the project and demanding revisions. The team worked hard, though, and the finished result is nothing short of a spectacular success

**C** Preparation and inspiration were essential: "We did a lot of referencing," says Cazals. "We had lots of DreamWorks movies like *Kung Fu Panda*, Blur Studio's *A Gentleman's Duel*, Pixar's *Up* and so on, but we also watched a lot of old Chinese Kung Fu movies"





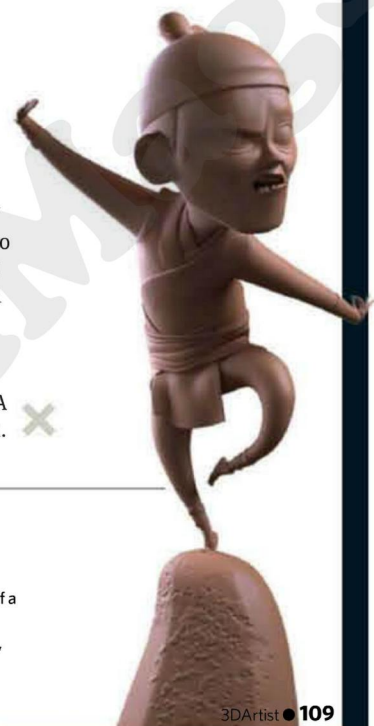
the entirety of lighting, rendering, compositing, environments and texturing. "Everyone's work was converging to me," he remembers. "I had to dress the scene, take care of the composition, start lighting, render different passes, pre-comp it, put the FX on top, do the final comp and grade... I had to repeat that 80 times for the 80 shots of the movie."

"I did around two shots a day overall," Cazals continues. "It became the biggest technical challenge of the whole movie. I used so many tricks to get the render faster and the scenes lighter, such as a V-Ray proxy for the

environments, fast SSS for the characters and the water shader, layers organisation to render the characters separately... it was all really challenging."

Challenging, but rewarding, says Ma. "The work came in piles, and everyone was extremely exhausted," he recalls. "But we were all devoted to our work and gradually the beautiful drawings, interesting animation and high-quality VFX came together."

"We hung on [until] the end of the movie and we've learned a lot. It was a valuable experience." You can see 'A Fox Tale' at [www.afoxtalemovie.com](http://www.afoxtalemovie.com).



**D** For Ma, organising the workload was key to the short's creation. However, the ultimate artistic goal should be remembered: "You should stick to the point that you really want to present. It's crucial to put all of your energy into this"

**E** One of the more subtly impressive aspects of the short is the camera work, which swoops, dives, cuts and edits with all the skill of a Hollywood production. "Camera is one of the languages for storytelling," adds Ma





Industry insider

## Blizzard cinematics

Senior environment artist

Toni Bratincecic proves that you don't always need a degree or deep pockets to land your dream job in 3D

### About the insider

**Job** Senior environment artist

**Location** California, US

**Education** Degree in Information Science, self-taught 3D artist

**Company website** [www.interstation3d.com](http://www.interstation3d.com)

**Biography** Originally from Croatia, now living in the US, Toni Bratincecic started creating 3D graphics in the 90s on his Atari ST. When he got his 486, things got more serious as he started to create complete 3D illustrations in 3D Studio and POV-Ray. After several years competing in the IRTC (Internet Raytracing Competition), winning several awards, he took his first job working on commercials and special effects for documentaries as a 3D generalist in Croatia. Eventually, his talents were spotted by the creative director at Blur Studio. Bratincecic was whisked overseas - with his understanding wife - to settle as scene assembly lead at Blur Studio. Four years later an opportunity at Blizzard Entertainment opened up, which is where he now works as a senior environment artist in the cinematic department.

**F**or this Croatian 3D generalist, who spent years painstakingly teaching himself the art of 3D computer graphics in his spare time, a phone call from the creative director at Blur Studio brought an unexpected turn of events. Moving home and country to California, Bratincecic went from working on commercials and special effects at Vizije SFT to cinematics for Blur Studio. For many, of course, this is a dream come true.

Stepping into the role of scene assembly lead at Blur Studio, his job was more specialised than before, involving modelling environments, shot lighting and compositing. "That was actually very good for me since I was able to specialise in areas that interest me the most," Bratincecic comments.

The move to Los Angeles brought more to his life than anticipated. Bratincecic explains: "I was mostly focused on the work that I would be doing over there, but it brought us a lot of other life pleasures that I wasn't expecting... I had equal fun working for Blur and exploring a new culture."

After four years at Blur Studio, Bratincecic decided it was time for pastures new, and set his sights on the epic Blizzard Entertainment. "I was considering a few visual effects companies, but in the end I decided to take an offer from Blizzard Entertainment," he explains. "I was a huge fan of the *StarCraft* and *Diablo* games; they brought me so much pleasure and good memories [when] I was young... I am really looking forward to being a part of the team that produces some of the best games and cinematics in the world!"

**3D Artist:** What software do you need to specialise in to work in your field?

**Toni Bratincecic:** One thing that every person in this industry needs to understand is that it is a constantly changing environment. Every year there are new software packages coming out, new workflows are invented and it's your responsibility to follow all these [numerous] changes. The main quality that should be crucial for surviving in this field is curiosity. If you are

one of these people you probably can't wait to see what's around the corner regarding software development, and that curiosity to explore will make you learn and educate yourself about new developing technologies. As for my work, I mostly rely on 3ds Max, ZBrush, Photoshop and MARI.

**3DA:** Do you get much time to be creative out of hours? If so, what do you do to perfect your skills out of the office and where do you seek inspiration?

**TB:** My inspiration comes from stories - either ones from real life or fictional ones. When I'm doing personal work I usually do small sketches as a basic concept of the story, and as I model a scene I develop those stories to a higher level, which helps me shape the final image.

It's very important to keep a good balance of work that you do professionally and personal work, since personal work will help you become a better professional because it will make you very independent and self critical - plus it will bring some organisational qualities and discipline to your work. Once you achieve that, you will be able to apply some of those principles to your professional work and that will make you even more efficient.

**3DA:** You've been actively involved in the 3D community for many years now. How has this helped you establish yourself in the industry?

**TB:** It's very important to create personal work since it will help you establish yourself inside the 3D community online. This is what helped me with

### Independent learning

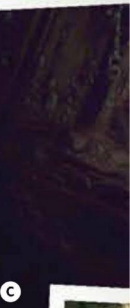
Bratincecic is a completely self-taught 3D artist. Throughout his career he was unable to afford education in art and animation, so instead he learned everything during his spare time - particularly while he was studying for his degree in Information Science. He says: "You could say that I got two diplomas after college: one from the school and the other from my passion to create 3D art."

portfolio highlights

Some of the titles Bratincecic has worked on include:

- 2011 *Star Wars: The Old Republic* intro cinematic
- 2011 *Lost Planet 3* cinematic trailer
- 2011 *Brink* game cinematic Trailer
- 2010 *Mass Effect 2* game cinematics
- 2009 *Dante's Inferno* cinematics
- 2009 *X-Men Origins: Wolverine* game cinematics
- 2008 *Halo Wars* cinematics
- 2007 *Fable II* game cinematics
- 2009 *Speed of Magic Ferrari* theme park ride

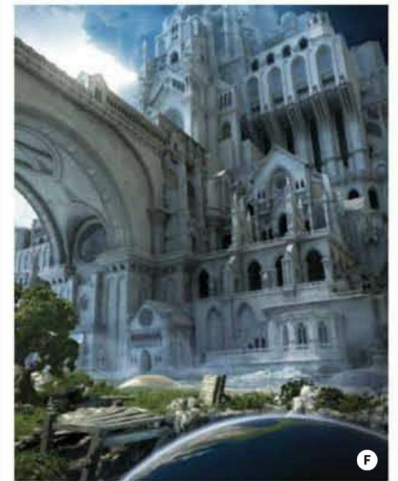
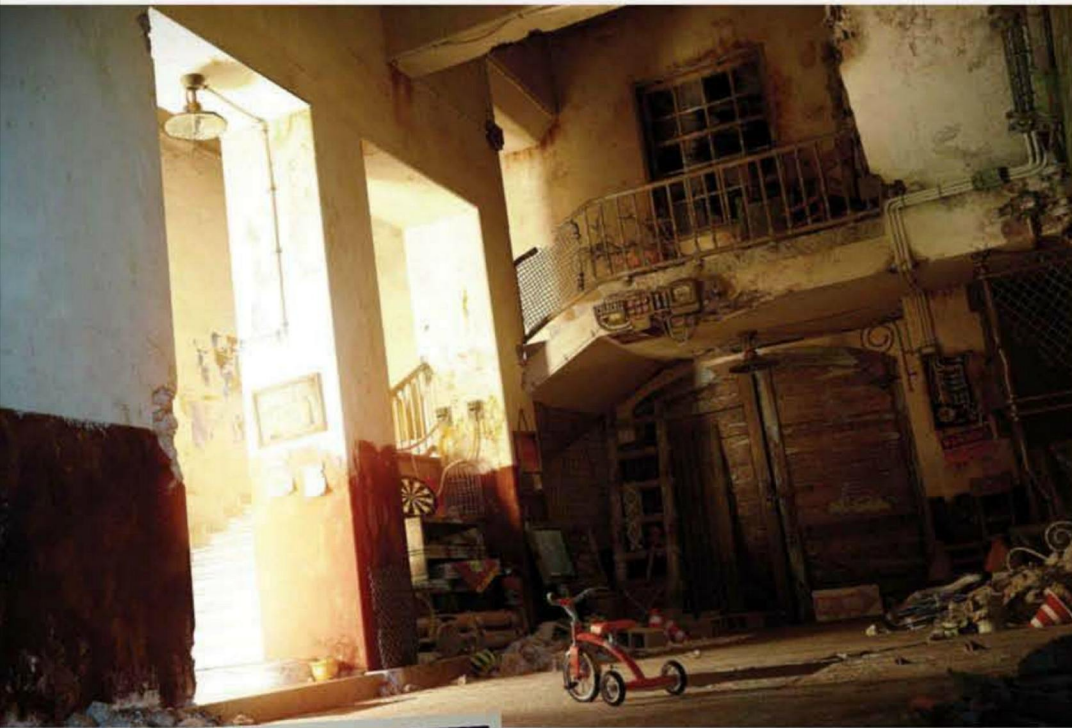
**A** "Join us!" was made for a 10th anniversary V-Ray competition. My main idea was to explore how peaceful people... are trying to stop wars with their ideas of love," Toni says of his image





**workspace**

To submit your project to the workspace™ please contact Chris McMahon at [chris.mcmahon@imagine-publishing.co.uk](mailto:chris.mcmahon@imagine-publishing.co.uk)

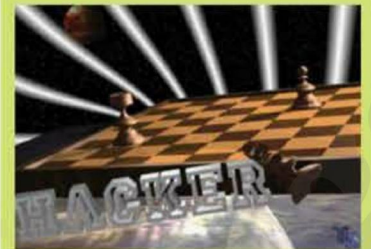


All images © Toni Bratincevic

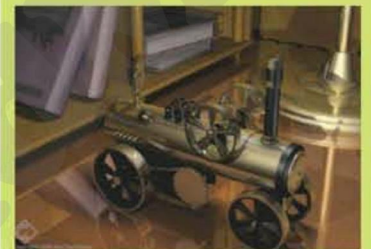
## We all have to start somewhere

Bratincevic shares some of his earliest 3D creations to help us see that anyone can make it in the industry with a little passion, determination and hard work

One of my first 3D images made with 3D Studio 2.0 (below). It was made for a local 3D competition. I just wanted to show how I started and how much my work [has] improved over the years.



During my amateur years, this was one of the images produced with POV-Ray (below), a free rendering package. I made it on a very old machine with only 4MB of RAM and 486 120 MHz processor.

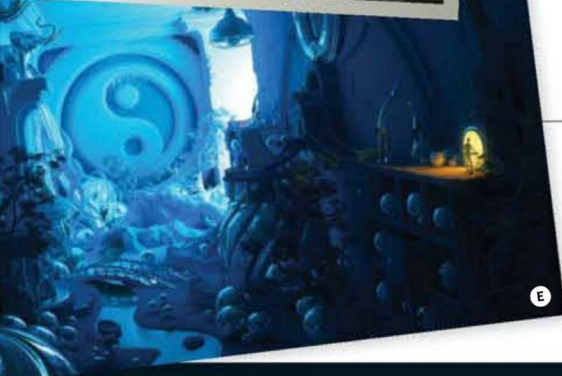
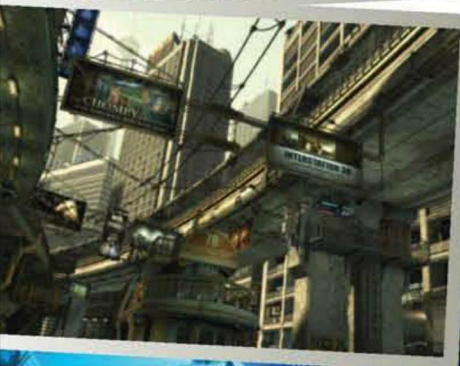


establishing myself as an artist, and it is really nice to see how after some point you start to get emails from people [starting out] in 3D, saying how they want to become like you one day.

We all share a common responsibility towards the 3D community, and as I had people that I idolised when I was younger, once I became a better artist I decided to give back to the community as much as I could, because of all the help I got when I was young.

My general advice is that anybody can become good at 3D and after some time land a decent job; it just takes a lot of practice and discipline to get to a [professional] level. There is so much truth in the statement that talent is only a small part of success, most of it is [hard work] and practice.

“We all share a common responsibility towards the 3D community, and as I had people that I idolised when I was younger, once I became a better artist I decided to give back”



**B** “It was you was the image I made as a dedication to my wife Martina. It is based on some fictional story,” Bratincevic says of this scene

**C** “Consumed was inspired by... events from my history; it is about a person who [is suffering with] Alzheimer’s disease,” he says with reflection

**D** “This image was one of the first complex scenes I created at the start of my [career] as part of [the] Maya learning process,” he explains

**E** “Dawn of Balance ... explore[s] some ideas of materialism and how, without people, this world would feel so totally empty,” he says thoughtfully

**F** “My try at designing a giant church based on Gothic-style architecture. It was made for a CGSociety competition,” says Bratincevic





✓ iPad ✓ iPhone ✓ Android phone ✓ Android tablet ✓ Apple Mac ✓ Windows PC



# No Disc. No Problem

Many of the files you're looking for can be found on the magazine's website

Imagine digital editions are a new and exciting way to experience our world-leading magazines and bookazines.

To get the most out of your digital editions, be sure to enjoy all of our fantastic features, including:

- Zoomable text and pictures
- In-app browsing
- Searchable text
- Take your collection with you
- Read offline



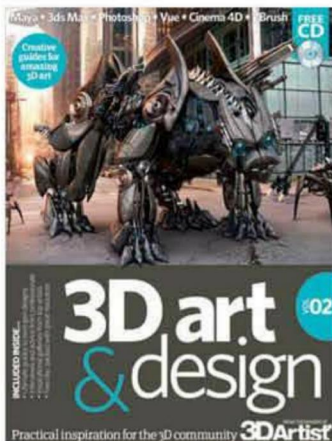
To buy more Imagine digital editions and for the latest issues and best offers, please go to

[www.GreatDigitalMags.com](http://www.GreatDigitalMags.com)



# Learning digital art? We've got it covered

Order our copies of the very best creative bookazines and DVDs today



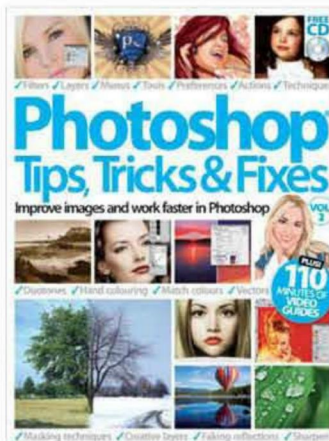
## 3D Art & Design vol 2

Covering all the major players in the 3D design world including Maya, 3ds Max, Vue and ZBrush, this in-depth guide will help you create 3D art like never before.  
SRP: £14.99



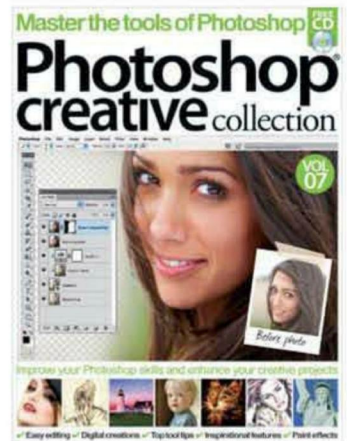
## Beginner's Photoshop vol 3

This third volume covers over 50 new inspirational Photoshop projects in an easy-to-follow format complete with over an hour of video tutorials on the disc.  
SRP: £12.99



## Photoshop Tips, Tricks & Fixes vol 2

The ultimate guide to Photoshop cheats. This fun book will show you how to get the results you want from Photoshop fast!  
SRP: £14.99



## Photoshop Creative Collection vol 7

This latest addition to the Photoshop Collection includes excellent guides to help you become a Photoshop master.  
SRP: £14.99



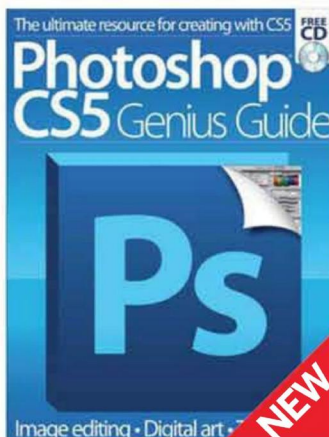
## Fantasy Art vol 2

Let your creative side run wild with this fantastic compilation of inspiring sci-fi and fantasy art. From aliens and fairies to robots and manga, it's all covered here.  
SRP: £14.99



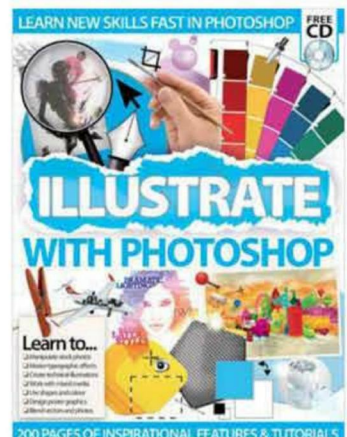
## The Complete Guide to Digital Painting vol 3

Transform your artwork with this comprehensive book packed with expert tips for Corel Painter, and build great digital art in no time.  
SRP: £12.99



## Photoshop CS5 Genius Guide

Improve your digital creations and master all the tools of CS5 with these step-by-step guides and in-depth features.  
SRP: £12.99



## Illustrate with Photoshop vol 1

Build professional illustration and graphics skills with this essential Photoshop guide, including over 140 pages of expert tutorials.  
SRP: £14.99

Prices may vary, stocks are limited and shipping prices vary depending on destination

Order online [www.imagineshop.co.uk](http://www.imagineshop.co.uk) 



# Realise your **vision...**

3D Design, Visualisation, Analysis/Simulation, Rendering, and more...



From as little as £1.70p/day\*



**Workstation  
Specialists**

Powered by



+44 (0) 800 180 4801

[sales@wksmail.com](mailto:sales@wksmail.com)

[www.workstationspecialists.com](http://www.workstationspecialists.com)

© Copyright Workstation Specialists – Aecad Software Ltd. E & OE - Prices exc. VAT & are subject to change without notice. All rights reserved. Logo & company/product names are trademarks of their respective owners. All rights reserved. Intel®, the Intel® Logo, Core & Core i7 Inside are trademarks or registered trademarks of Intel® Corporation in the US and other countries. \*Based on a corporate finance lease/purchase. Prices based on a 36month contract term and all figures are quoted subject to status. Written details available on request.



# UNLEASH YOUR IMAGINATION



**Bruce Heinlein**

**Q:** Did you have any 3D software experience before coming to the DAVE School?

**A:** *No, not at all. My background was mostly graphic design.*

**Q:** How has your experience at the DAVE School been so far?

**A:** *It has been great, I have learned so much in such a short period, it has also opened up a whole new level of possibilities for my creative side.*

**Q:** Tell me about this Model?

**A:** *This was created in less than a week. It was our second week project.*

**Q:** Wow! Did you think that you would be able to create something like this in your second week of school?

**A:** *Absolutely not! When the instructor showed us the reference material, my jaw dropped! I'm glad that I decided to come to the DAVE School, and look forward to what I can do next.*



**DAVE SCHOOL**

DIGITAL ANIMATION & VISUAL EFFECTS

[www.daveschool.com](http://www.daveschool.com)

WorldMags.net